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We reveal the results of our annual survey on industry working conditions and talk to developers about how they maintain a healthy quality of life under stressful circumstances

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How to appeal to everyone

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EDITORIAL

ALL WORK & NO PLAY

WE WORK TO live, as the old saying goes; we don't live to work.

But when you're pouring your heart and soul into a new project – be that a prototype, a full game, or anything creative – it can be easy to lose yourself in the work.

That's not necessarily a bad thing; final products often shine when you go the extra mile. But when that mile comes at the expense of your health, both physical and mental, or affects your life outside the studio, it's time to take a step back.

Craig's excellent piece on developer quality of life, which starts on page 11, paints a bleak picture of how some devs work themselves into the ground. The revelation that *Ridiculous Fishing* studio Vlambeer almost collapsed when the team was working too hard should be warning enough. The message from the developers in this feature is clear: take care of yourself.

Part of that responsibility obviously lies with the studio. It is up to execs to be aware of the conditions their staff work in, no matter how close your deadline or launch may be. Many studios take this duty seriously, but there are always whispers of those that don't.

It's not just about ensuring your teams survive a working day, either. Everyone has ambitions, places they want to go in their career, and encouraging this can not only enhance your workforce, it can discourage them from jumping ship. We look into this a lot closer on page 18.

As everyone's Twitter and Facebook feeds have reminded us, the future starts here. So stop making hoverboard jokes and really think about what you want to accomplish in 2015. Then go for it – only you have control over your life.

James Batchelor

jbatchelor@nbmedia.com



Removing gender as a barrier

A new survey by Creative Skillset and Next Gen Skills Academy has uncovered how women feel they are treated in the games industry, with plans afoot to support female developers in the future

by Craig Chapple

45 PER CENT of women employed in the UK games industry say that they have experienced barriers to career progression due to their gender, according to new research.

The Next Gen Skills Academy's new gender balance survey saw around 40 per cent of women in the UK games sector take part, revealing key information and opinions on the treatment of women in the workplace and what can be done to support female professionals.

The survey's key findings included 42 per cent of women as reporting they had experienced bullying or harassment from someone in a position of authority, though 84 per cent cited good practice when it came to gender balance and inclusion.

Meanwhile 94 per cent stated they would like help with personal branding and finding their own voice, and 43 per cent said they would like the opportunity to attend a workshop addressing issues to improve gender balance.

Speaking to *Develop*, Next Gen Skills Academy acting MD Gina Jackson said gender as a barrier to career progression is a complex issue that won't be transformed overnight, but is happy to see the issues now being debated openly.

"It is a shame it too often evokes a defensive response, the more evidence-based research we can do and the more debate we can support, the easier the conversations are going to be," she said.

"We need to support these discussions with the provision of practical solutions including sharing best practices and training, then I believe we will start to see changes. These improvements are likely to be demonstrated in the number



Gina Jackson says discussions on gender need to be supported with the provision of practical solutions

of women in the industry. I expect us to see this rise above the rates that we saw in 2002 at 16 per cent, before they dropped to just six per cent in 2009, it has steadily climbed back up to 14 per cent in 2012."

"We are seeing more women speaking at conferences and appearing in the press but we all need more role models. Having women speakers and writers providing keynotes, talks and appearing on panels is a real inspiration."

WORKING FOR CHANGE

The number of women reporting harassment or bullying in the workplace is worryingly high, though 61 per cent of survey participants said

“Having women speakers providing talks is a real inspiration.”

Gina Jackson, NGSA

they felt they were able to report this behaviour to someone, which Jackson said is a much higher figure than had been anticipated.

"We are looking to other sectors and to government to see what initiatives we can learn from," said Jackson.

"We have put together an advisory group from the industry and government who have already seen the survey results from individuals and have provided a series of recommendations to guide our next steps.

One way the Next Gen Skills Academy aims to tackle issues covered in the survey is through a series of workshops across the country. Areas to be

covered include learning techniques to increase your impact and influence, improving personal branding, gender barriers and how to create a gender balanced working environment. These programmes will take place in London on February 2nd, Bristol on February 3rd and Manchester on February 4th.

Jackson said she hopes the data from the survey, which will be fully released later in the year, will be utilised to assist all companies in recruiting and maintaining a gender balance workforce "for the good of the UK industry, to strengthen itself and make it as resilient as we can".

"Part of our maturing process as a sector is to share best practice and to support all staff in their career and skills progression," she said.

"We would love to continue this work and do further research, workshops and roll out a women's mentoring programme in 2015, but all these activities take funding."

SAVE THAT DATE

A SERIES OF workshops based on the findings of the Gender Balance Survey will be hosted across the country. Topics to be covered include learning techniques to increase your impact and influence, developing personal branding and how games studios can create a gender balanced working environment.

You can find the dates for these events below.

London.....February 2nd
Bristol.....February 3rd
Manchester.....February 4th
London.....February 19th

Visit the events page for more information at:
bit.ly/1ucqgUM



Claiming female leads don't work is nonsense: Here's why

deve1op.net/14ppwVk



Meet the voice behind Destiny's Eris Morn – Morla Gorrondona

deve1op.net/1tLEGAD

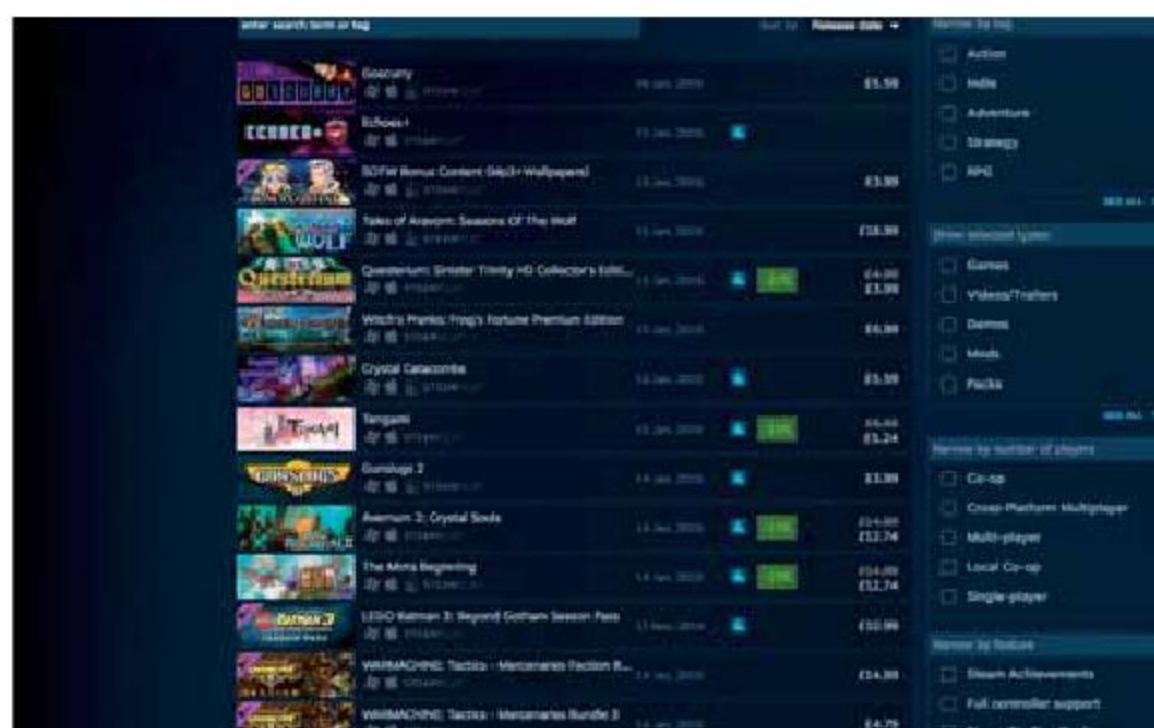


Why a graphics specialist gave up Hollywood for games development

deve1op.net/1xsALmW

Are developers undervaluing themselves with launch discounts?

Devs discuss their experience with slashing the price of their game on release, and why it may be a tactic worth considering on Steam to get your title discovered in the face of thousands of competitors



Games such as *Cloud Chamber* (above), *Words for Evil* (top) and *Toast Time* (below left) have all had launch discounts

by Craig Chapple

UNLIKE THEIR CONSOLE counterparts, PC game prices, particularly on Steam, fluctuate from a few pounds to the high-end £40 to £50 mark.

But one of the biggest things Steam has become known for amongst consumers is its massive game sales. This can be seen in deep discounting on the majority of titles, even those released just a couple months before, by as much as 50 per cent.

These discounts prove so popular that sales of an individual title can increase tenfold, while also making a developer's title stand out from the crowd.

And game sales are becoming more prevalent on an ever-increasingly crowded Steam store as a tool for developers to get their game noticed, even at launch, to maximise game sales. These can take off ten or 20 per cent of the cost, sometimes even more, for early adopters.

But are developers undervaluing themselves with such early discounts?

THE PRICE IS RIGHT

Investigate North CEO Christian Fønnesbech said when releasing its unique narrative investigative title *Cloud Chamber*, the team had no idea what to expect from sales, and after a recommendation from Valve to use a launch discount, the team had no regrets.

"Selling anything on the digital marketplace is a complex interplay between the customer's awareness of your product – have they heard of it before? – the exposure it gets on the digital store, what the product is and so on," explains Fønnesbech.

"The main reason to run a launch discount is to get more visibility at launch because you get featured in the 'Special' section. Games also tend to have a noticeably better conversion rate – converting from visitor to paying

customer, that is – especially when it's an indie game without a major marketing campaign.

"A product on sale has a much higher chance of being sold on Steam – and a 10 per cent discount doesn't affect the income that much.



"This could be part of the nature of selling through massive online stores – such as Steam, the App Store and so on – simply because it is so easy to disappear in these massive databases.

"It could also be because there exists some kind of 'discount culture' among Steam customers – or it could simply be because the discovery algorithms, or the interface design of the store, on Steam favour discounted products."

Ashley Gwinnell, director of *Toast Time* developer Force of Habit, said that if the discount at launch was just ten per cent, he would consider it a "healthy discount", but any bigger and it could have a negative impact on future sales.

"Large 50 per cent discounts may signify lack of confidence," he said. "Large discounts too early on are often detrimental to long-term sales. That said, the rampant sales culture of Steam is possibly bad for everyone."

STANDING OUT

Gwinnell added launch sales are a way of rewarding early buyers, but noted that devs aren't allowed to discount Steam titles or change the price during the first two months of release.

"This encourages consumers to buy early, as they know it won't be discounted again for some time," he said.

Indie developer Dylan Loney, behind fantasy RPG *Words for Evil*, said that for his first game, setting a launch discount was not a matter of confidence, but "reacting to what Steam has become".

"There are so many fantastic games on Steam that you can get them for next to nothing; if I don't set myself competitively, people will just go after the next good deal," said Loney.

"It was very difficult to settle on a price. Objectively, I can look at the game, assess its features, dock it for any pitfalls, and assign a value that seems fair. But then you remember the immeasurable hours and all the personal investment it took to build, and things start to get emotional."

Fønnesbech added: "On Steam, players would rather buy a \$10 game with a 50 per cent discount than a \$5 game at a full price."

DEVELOP DIARY

Your complete games development events calendar for the months ahead

AT A GLANCE

**FEBRUARY 10TH****Evolve**

Left 4 Dead dev Turtle Rock shakes things up with its 4-vs-1 shooter

**FEBRUARY 13TH****Fifty Shades of Grey**

See what the fuss is about if you never read this porn – er, literary sensation

**FEBRUARY 14TH****Valentine's Day**

Card firms demand you spoil your other half. Y'know, more than usual

**FEBRUARY 17TH****Pancake Day**

The world record is 349 flips in two minutes. We dare you to beat it

**FEBRUARY 20TH****The Order 1886**

Hunt werewolves through a steampunk London. Just because

**FEBRUARY 22ND****The 87th Academy Awards**

Hollywood fights over the world's most expensive figurines

DIARY DATES

**The Develop Quiz**

February 18th

Guildford, UK

cnangle@nbmedia.com

FEBRUARY**ICE TOTALLY GAMING**

February 3rd to 5th

London, UK

www.icetotallygaming.com

DICE SUMMIT

February 3rd to 5th

Las Vegas, USA

www.dicesummit.org

CASUAL CONNECT EUROPE

February 4th to 6th

Amsterdam, Netherlands

europe.casualconnect.org

INDIECADE EAST

February 13th to 15th

New York, USA

www.indiecade.com/east

WOMEN OF THE YEAR AWARDS

February 19th

London, UK

ABoucher@nbmedia.com

MARCH**MOBILE WORLD CONGRESS**

March 2nd to 5th

Barcelona, Spain

www.mobileworldcongress.com

GAME CONNECTION

March 2nd to 5th

San Francisco, USA

www.game-connection.com

GDC 2015

March 2nd to 6th

San Francisco, USA

www.gdconf.com

EVENT SPOTLIGHT

WOMEN OF THE YEAR AWARDS 2015

DEVELOP'S SISTER PUBLICATION MCV is compiling a list of the most influential women in the UK games industry, followed by a special awards ceremony on Thursday, February 19th.

This ceremony will honour all of the successful candidates that are listed in the MCV Women in Games Top 100, and will take place at the Ham Yard Hotel, near Piccadilly.

There will also be three special awards given out – one for Creative Inspiration, one for Campaigner and one for Pioneer.

The winners will be voted for by the members of the Top 100, plus a panel of peers and professionals.

The event will follow a range of activity from both MCV and Develop recognising the games business' leading women in January and February.

WOMEN OF THE YEAR AWARDS 2015

This ceremony will honour all of the successful candidates listed in the MCV Women in Games Top 100.

The January 30th issue of MCV will be dedicated to the 'Brit List: Top 100 Women in Games', profiling the women who have moulded the business and are pushing it forward. The list will also be promoted extensively online.

If you'd like to find out more information, please email mfrench@nbmedia.com or call 01992 515 303.

For information about sponsorship for the Women of the Year event or advertising in the Top 100 Women in Games edition of MCV, you can contact aboucher@nbmedia.com

COMING SOON

**DEVELOP #158: MARCH 2015**

- GDC Issue: Including our definitive preview of the biggest event of the year
- Indie Special: What's next for this thriving sector of games development?

**DEVELOP #159: APRIL 2015**

- QA & Localisation Special: We speak to experts about changing demands and standards
- Engines: In-depth look at the best game engines

For editorial enquiries, please contact jbatchelor@nbmedia.com
For advertising opportunities, contact cnangle@nbmedia.com

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Variable declarations



//COMMENT: BUSINESS

The year of WTF games finance

Nick Gibson ponders why so many non-gaming firms are investing in the industry

Chinese chicken meat firm Sumpo Food Holdings purchased a majority stake in Digital Extremes, the Canadian developer behind *Warframe* (pictured) – a prime example of what Nick Gibson describes as 'WTF games finance'



WHAT DO COMPANIES that farm chickens, make woolly jumpers and develop games have in common? Most sane people would conclude 'absolutely nothing' – yet 2014 saw several major acquisitions and investment rounds involving firms as diversified as these.

There's an investment adage: "if you see a bandwagon, it's too late". So with chicken and clothing companies moving into the games industry, has the bandwagon well and truly arrived and if so, how has it happened and what are the implications?

Bandwagon investment happens when investment decisions are made based on other investors' actions rather than any intrinsic belief or even clear investment logic. Investing in something solely because others are is not in itself a poor investment strategy. Many acquirers and investors prefer to stick with the herd, acquiring companies only in 'hot' areas or co-investing besides more experienced and knowledgeable investment partners. Bandwagons can often enjoy strong momentum, delivering solid returns.

However, amongst the dangers is the risk that, as they progress, they tend to attract a growing number of inexperienced investors whose poorly-informed decision-making can drive up valuations to unjustifiable levels and create bubbles. Such bubbles have a tendency to eventually burst (e.g. all things internet in the early 2000s, or Facebook gaming just a few years ago).

I don't believe there is a bubble for games quite yet, as valuation premiums are not consistently excessive, but games are on a bandwagon and it is picking up momentum.

2014 was another bumper year for games investments and acquisitions with both transaction value and volume increasing materially. There was a marked increase in transactions involving companies well outside the usual sphere of tech and media investment institutions and games firms.

SURPRISING INVESTMENTS

We saw the purchase of a majority stake in Canadian online games developer Digital Extremes by Chinese chicken meat giant Sumpo Food Holdings, and the acquisition of 24 per cent of Chinese online games giant Shanda Games by Ningxia Zhongyin Cashmere, a textiles company. They weren't all so left field but Amazon's purchase of Twitch and Facebook's of Oculus VR also fit into the 'WTF' transaction category too, judging by the surprise that their announcements generated.

None of these deals, at first glance, had much immediately obvious business logic to them, but they all share something in common – they are all long-term bets on the growing social and commercial potential of games, gamers and games technology.

The industry emerged from its demographic niche in the mid-1990s but the strong and consistent expansion of mobile and online games markets have delivered new commercial opportunities to exploit games' wide demographic appeal on a truly mass scale.

Also attractive to external investors, commercial and games design innovations have yielded business models capable of

delivering not only strong margins and growth rates but also relatively high degrees of predictability. Such traits range from rare to non-existent in other sectors.

While the games industry remains highly hits-driven, the hits in online and mobile tend to reach their peak over months and years and rarely suffer the dramatic brevity and concentration of commercial returns that boxed products tend to.

This all makes them considerably more appealing investment and acquisition opportunities, in particular to outsiders unfamiliar with games industry dynamics but capable of analysing financial statements and forecasts.

Games have therefore become a very attractive area for investment these days with their mass global appeal, high growth rates, solid financial fundamentals and excellent exit opportunities.

Bubbles have a tendency to burst. I don't believe there is a bubble for games yet, as valuation premiums are not consistently excessive, but games are on a bandwagon and it is picking up momentum.

For anyone involved in games investment a decade ago, when most investors wouldn't touch a games company with a barge pole, this will represent an incredibly stark contrast.

The games bandwagon is undoubtedly going to carry on rolling and continue attracting a wide array of investors and acquirers. For now, this remains a welcome development as it is funding games innovation and accelerating the growth and diversification of the industry.

I don't believe a bubble has formed yet but with such 'alternative' companies throwing their money in the games ring, the early warning signs are probably here. ■

Nick Gibson is a director at Games Investor Consulting, which provides commercial check-ups, strategy and data to games, media and finance companies.
www.gamesinvestor.com



//COMMENT: INDIE

Disrupt yourself: From follower to leader

Debbie Bestwick discusses how Team17 is becoming one of the fastest-growing indie publishers

MIDWAY THROUGH THE previous console generation, Team17 faced a dilemma.

As a mid-to-large size independent studio, we had a healthy business with an original IP that relied upon traditional publishers, and also a work-for-hire business that depended upon market forces and publishers' whims.

We could see the console business moving to a 'fewer, bigger' strategy, and a resurgent PC market that bypassed publishers altogether – so where did that leave us?

For the first part, the solution was relatively straightforward: we took the decision to commit early to self-publishing, publishing some of the first PSN/XBLA games.

The answer for the work-for-hire part was less obvious. Self-publishing was so new that moving the whole studio over to original products would have risked the future of everyone there – and our first responsibility has always been to ensure our team can pay their mortgages and feed their families. But, as we watched more and more studios close, staying in work-for-hire became equally risky.

The growth of disruptive new platforms such as Steam, XBLA, PSN and mobile – along with the rise of smaller, more creative indie devs – meant anyone could make a game. The bad news was this would cause big discoverability issues. Add to that a lack of marketing experience for many teams and a fractured platform landscape, and it was clear a new kind of publisher was needed.

In 2013, strengthened by self-publishing successes like *Worms*, *Alien Breed* and *Superfrog*, we decided to be that new type of publisher, teaming up with new indie developers such as Moldy Toof (*The Escapists*), Self Made Miracle (*Penarium*), Dlala (*Overruled*) and Just A Pixel (*Light*).

This decision has already been vindicated: we've seen *Just A Pixel* win the TIGA Start-Up award, *The Escapists* win the UK Game Of The



Embracing new platforms such as Steam (main), and publishing indie titles such as *Overruled* (far left) and *The Escapists* (left) has allowed Team17 to transform its business

Show award at Gamescom, and Team17 named Best Publisher at the TIGA Awards.

This helped us refocus our work-for-hire business into a true partner (incubation) support program, making our experience available in the form of design, code, audio, production and QA/usability resources.

A CHANGE IN STRATEGY

This creates a virtuous circle; our partners are able to have the multi-SKU product launch that consumers demand without additional risk, and keep control of their creative vision. At the same time we increase our value offering as a unique publishing partner, going beyond the usual marketing and PR support without becoming the overbearing beast the word 'publisher' brings to mind.

The last few years have seen massive disruptions in our industry. The world of the PS3 and Xbox 360 launches seems a lifetime away and self-disruption has been necessary for survival; those who couldn't didn't survive.

Disrupting yourself doesn't have to mean throwing everything away though. By keeping and adding to your skills and disrupting your focus you can not only stay relevant (and in business!) but continue to be at the forefront of this fast-changing industry.

Debbie Bestwick is CEO and one of the founding members of Team17. She pioneered the company's leap into digital publishing.
www.team17.com

//EXTRA CONTENT ONLINE



"Not using '.' in a game title isn't enough. That their game is so similar to *S.T.A.L.K.E.R.* is a problem."

7 reasons why West Games' Stalker project will end in tears
Jas Purewal, Purewal & Partners
deve1op.net/1vRaXQL



"Indies are starting to make a nonsense of old conventions about what they could and couldn't make, inspiring a generation of developers."

2014: Developers' Post-Mortem
Shahid Ahmad, SCEE
deve1op.net/1zQIm6P



"We often associate YouTubers with *Minecraft* and *Call Of Duty*, but mobile content like *Crossy Road* has reached out to gain their attention."

The gold rush is over
Oscar Clarke, Everyplay
deve1op.net/13bsxYG

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SALARY SURVEY

Our annual research into how much developers the world over are being paid
P14



CLIMBING THE LADDER

Studios offer their advice on how you can advance your career
P18



THE ART OF CASUAL

How you make your game accessible to a broad audience
P22



Image credit: Tom Carpenter

Crunch life

Balancing quality of life with work can be difficult to achieve, but too many developers aren't finding that equilibrium. **Craig Chapple** investigates how widespread the issue is, and ways to address the problem

AS PART OF our annual Salary Survey (see pg.14 for the full breakdown) we asked developers important questions related to their quality of life. And the answers paint a somewhat poor picture of studio life.

Just over 41 per cent of developers said they work 31 to 40 hour weeks on average during normal periods of development. A further 41 per cent said that on average they work 41 to 50 hours per week.

Ten per cent of our survey participants meanwhile reported average working hours of 51 to 60 hours per week. Three per cent claimed they were being required to work 61 to 70 hours on average a week, and a small number claimed to work more than 70 hours.

This is above the national average of 37.6 hours in 2014, according to the Office for National Statistics' Labour Force Survey. This shows that games development is one of the most work intensive industries in the UK, which most of our respondents are from.

It should also be noted that, by law, employers can't force adults to work more than 48 hours a week on average (averaged over a period of 17 weeks). This is said to include paid and some unpaid overtime.

There are no instances where exceptions to this apply to games development.

Workers who want to work more than 48 hours a week can choose to opt out of this

limit for a certain period or indefinitely, but this must be done voluntarily and in writing.

It is important to know that the UK Government website specifies that this: "can't be contained in an agreement with the whole workforce. However, employers are allowed to ask individual workers if they'd be willing to opt out".

“An employer shouldn't sack or unfairly treat a worker (e.g. refused promotion) for refusing to sign an opt-out.”

Gov.uk

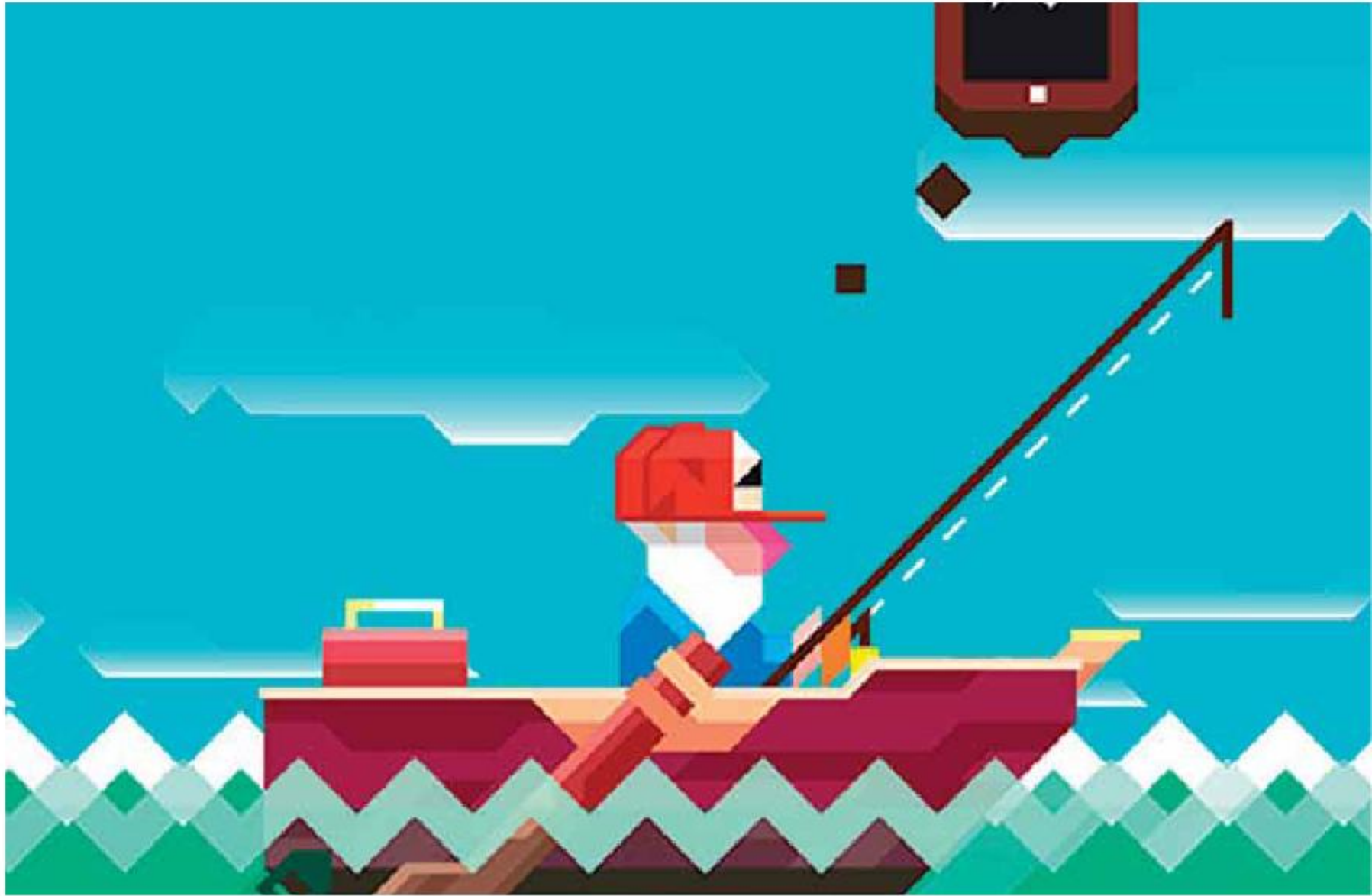
And: "An employer shouldn't sack or unfairly treat a worker (e.g. refused promotion) for refusing to sign an opt-out."

It is also stated workers can cancel their opt-out whenever they want – even if it's part of their employment contract.

THE CRUNCH

Despite such protections for UK employees, in some cases this appears to be wilfully ignored by studios, or at least just within the

Vlambeer's Rami Ismail says emotional exhaustion meant he was unable to deal with the cloning of *Ridiculous Fishing*, and not addressing the team's work-life balance could have meant the end of the studio



confines of what is acceptable, and most staff also report being unpaid for overtime.

45 per cent of developers said they were expected to work overtime regularly. Over 80 per cent said they were not paid for this.

One positive, however, is that the majority of employees – 75 per cent – are offered flexible working practices, including the option to work at home and have flexible hours.

We asked a number of developers in the games industry about their experience in working overtime and crunch, and the effect it has had on their health and personal lives.

Tammeka Games game producer Sam Watts, speaking of his experience at previous places of work, said he had experienced crunch at many studios.

"Typically it would be in the last ten-to-20 per cent of development before release and could involve at least double the usual number of normal working hours per week," he explains.

"The longest period has been for three months before a global launch of a product when QA, localisation, pre-production and distribution comes into play."

He said while he had been fortunate enough to have an understanding partner and also no children during such lengthy working periods, he had witnessed a serious impact on the lives of colleagues.

"I have seen others with less understanding partners or those with children suffer break-ups of relationships, marriages and ill-health through stress and working crazy additional hours," says Watts.

"Sometimes I wonder if it's worth it when you are working on a title you may not be 100 per cent confident in or believe in."

Another developer who has worked on triple-A games at a number of publishers,

speaking anonymously, said providing crunch time is well managed and short, it can be effective, and developers who know in advance can plan their lives around it.

He says, however, he has still experienced "some terrible crunch periods".

"Early on in my career I lost a relationship because I was never out of the office. Later it affected my health and the health of people close to me," he says.

"I have seen others with suffer break-ups of relationships, marriages and ill-health."

Sam Watts, Tammeka Games

"Once I passed out in the office and my face slammed against the keyboard; I went home for a couple of hours and then went back into work to finish the day off. One story that is amusing, or tragic depending on how you look at it, is that one colleague turned up to work in full highland dress, kilt and all, because he had not had the time to wash any clothes and that was all he had left.

"In terms of hours, at its worst, weekdays would be ten to 14 hours each, then I'd do six-to-eight hours each weekend day. On two projects, I did this continually through three weekends working Saturdays and Sundays. A conservative estimate is that I worked 180 hours over 26 consecutive days."

THE INDIE BALANCE

Poor working conditions aren't just limited to studio life. Indies can often impose this on

themselves without realising the full consequences. Passion and a keenness to get that game out quickly can result in long hours, which can affect their general health, perhaps resulting in a lack of exercise, back problems from poor posture and a bad diet.

But indies shouldn't take their personal life lightly, as Vlambeer's Rami Ismail explains.

"It starts as a secondary thought, and invariably leads to having to adjust and learn to balance them," says Ismail.

"It actually is the single most important soft skill you can learn, somewhere between discipline and self-care. When my grandmother would hear how many hours I work a week, she would tell me a story that, even though she had 12 kids, she would always make breakfast for herself first. If she wasn't strong enough to make breakfast for 12, after all, nobody would get breakfast."

He goes on to say that when Vlambeer was formed, he found everything "was continuously on the up", exceeding expectations for its various projects. As a result, the team worked "ridiculous hours, on that adrenaline rush, trying to hold on to that momentum". Despite being what he calls a 'super-create time', he admits they were not aware of how much they were emotionally exhausting themselves.

"When something went wrong – in this case, the *Ridiculous Fishing* clone – we were completely incapable of sustaining our pace, and crashed into a rather dark place for months," admits Ismail.

"Our creativity was gone – Jan Willems inspiration comes from a place of comfort, and I was incapable of doing anything but stare at a blinking cursor. We didn't crawl out until we realised our issue wasn't that we weren't trying enough, but that we weren't

On keeping a more balanced worklife, he adds: "I try to be disciplined and only check email a few times a day and shut off at a sensible time. I tend to get out and do things in the evenings when I can, such as hit the gym, photo walks and other various hobbies."

BEATING THE CRUNCH

For employees at studios however, addressing the balance can be more difficult, particularly when staff feel they may let their co-workers down or lose their job should they kick up a fuss and realise their rights.

But this is something that can be solved at senior level, claims our anonymous source that has worked at numerous triple-A publishers, who blames creative indiscipline.

"If you live a balanced lifestyle, the hours you do spend making a game will be more productive."

Daniel Da Rocha

He recommends that to help alleviate issues, hours worked by the team be made into a key performance indicator for all game team leaders, with an equal importance to the quality and the profitability of the game.

"Without this being enforced, hours worked will always be lower priority," he says.

He also advised teams be structured in such a way that the needs of the creative and delivery side of the team are balanced, and describes a talk by Westwood Studios founder Louis Castle on the ideal team structure.

"It had a team being led by three senior people: the chief creative who is responsible for the game being good, the chief delivery manager who is responsible for the game being finished on time and an executive producer who is more senior than both of these and who arbitrates between the needs of both," he explains.

"This ensures that there is a balance between game changes and delivery schedules and will curb creative indiscipline."

Tammeka's Watts says there is no one single cause of crunch, and that it can result from poor communication within a team,

changes in direction during development without adjusting timescales, and the relationship studios have with publishers.

He also says he is concerned to see the indies racing to replicate the triple-A studio and publisher norms with extensive hours, health-affecting behaviour and overall bad practice for development.

"Indie should mean you are free from these pressures and able to make the game you want to make and how you want to make it, whilst being in touch directly with your playerbase," he says.

"Don't think that killing yourself and working every hour available is going to make your game any better, make you more successful or be rewarded in any way. These are all the reasons people want to escape triple-A and publisher-based development.

He adds: "If you are killing yourself making a game and not enjoying the process, you may as well be working at any other soul-crushing job that doesn't reward either."

It's a thought echoed by Da Rocha, who says games development should be fun, and regular breaks are a must for developers.

"A lot of devs tend to crunch long hours, lack exercise, drink Red Bull and eat pizza – I did this too – but in reality, if you live a balanced lifestyle, the hours you do spend making a game will be far more productive," says da Rocha.

The message is clear, killing yourself to make a game is not okay, and cutting down on hours to address your health and personal life can be just the boost your game needs.

KNOW YOUR RIGHTS

A Pay and Work Rights Helpline is available UK residents to obtain free and confidential advice on working hours.

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Telephone: 0800 917 2368
Textphone: 0800 121 4042
Monday to Friday, 8am to 8pm
Saturday, 9am to 1pm

UK employees can also find more information about their working rights on the European Commission website here: bit.ly/1u3VBOS

giving ourselves space to not try. It wouldn't be an exaggeration to say that if we hadn't figured that out, it would've ended Vlambeer right then and there."

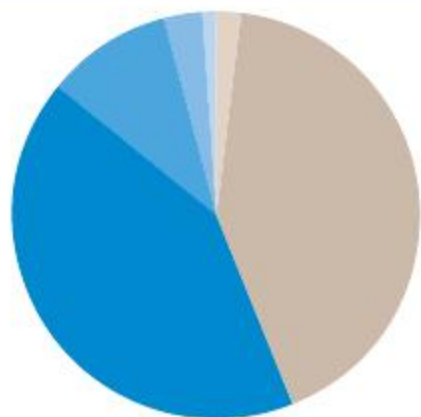
Fellow indie, Mudvark and Toxic Games developer Daniel Da Rocha says it's highly important to keep a balanced lifestyle, but admits it can be difficult to separate professional and personal life.

He admits he used to work "crazy hours" during the latter development of *Q.U.B.E.* to ensure he hit important deadlines, but this ultimately led to stress and physical problems.

The nature of the work can make it challenging to have a balance, not to mention your personal passion and creative drive.

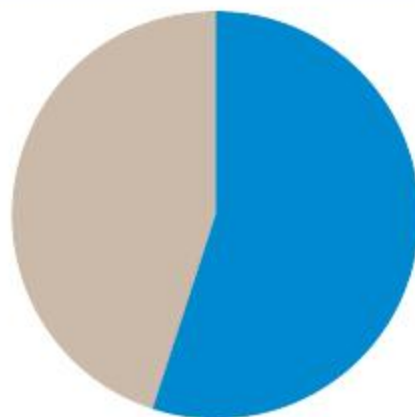
"Quality of life went out the window and my day-to-day lifestyle was completely orientated around game development," says Da Rocha.

HOW MANY HOURS ARE YOU WORKING?



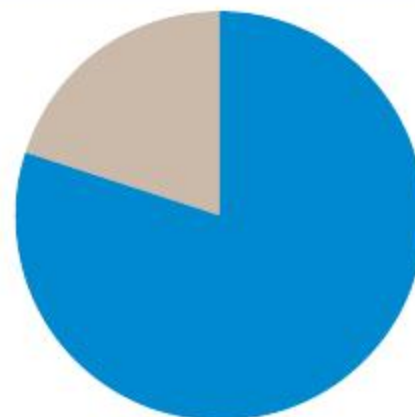
GLOBAL AVERAGE WORKING HOURS

- Less than 30 – 2%
- 30 to 40 – 42%
- 41 to 50 – 42%
- 51 to 60 – 10%
- 61 to 70 – 3%
- 70+ – 1%



ARE YOU EXPECTED TO WORK OVERTIME REGULARLY?

- No – 55%
- Yes – 45%



ARE YOU PAID ADDITIONALLY FOR OVERTIME?

- No – 80%
- Yes – 20%



Salary Survey

Following a large response of hundreds of developers around to the world to our salary survey, we present the numbers on how much pay industry professionals are getting, and what it means for you

Average global games development yearly salary

£31,882

THE AVERAGE ANNUAL global games developer salary is continuing to decline year-on-year, according to the results from MCV and *Develop*'s industry salary survey.

Last year we reported the number at £32,500. Throughout the last year however, the average has fallen to £31,882.

This marks the lowest average annual developer salary we've reported since the previous low point of £32,203, back in 2011.

As with last year, to ensure the results were reflective of the majority of industry salaries, we took out income below £14,000 and studio head and exec salaries above £100,000. With those included, the median salary only rises slightly to £32,000, still lower than 2011.

The mean average salary meanwhile, with our exemptions, stood at £35,904, again lower than last year's figure of £37,104. Including all participants, the mean salary is £37,533.

The results are surprising given the more stable footing of national economies in recent years – although in the UK, government austerity measures are still biting hard for many.

“This marks the lowest average annual developer salary *Develop* has reported since 2011.”

As with last year, the decline could be in partly down to the changing nature of the games industry, with the rise of indie developers and more small studios making games, the abundance of platforms available to deploy them to, and the continued shift towards the newer consoles causing uncertainty in the last year.

Out of our 442 respondents who listed their salaries, 77 identified themselves as working at a micro studio of ten staff or less or on their own – 17 per cent of participants.

The news is better for the UK, though. The average median national salary comes in at £33,000 – £1,000 higher than their overseas counterparts. The mean average meanwhile comes to £37,522.

Excluding wages below £14,000 and over £100,000, the median average still comes out at £33,000.

To calculate the results for this year's salary survey, we asked readers of *Develop* and our sister title MCV, to submit details on their job earnings, as well as answer questions on their feelings about the future, working hours and job satisfaction (see pg.11 for more information and stats on quality of life).

The total annual salary amount was calculated using a median average, so as to ensure that high earners and low-income indies did not distort the overall results.

MEN VS WOMEN



ONE OF THE more shocking aspects of our research shows a discrepancy between the pay of men and women in the games industry.

50 women took part in our survey across a broad range of roles including art, coding, production, design and QA.

Overall, the median average annual salary earned by women is £29,500. Men, meanwhile, earn a median average salary of £32,000. A difference of £2,500.

The mean difference shows a smaller pay gap, with men earning £37,583 and women making £37,046.

The median average earned by women is £29,500. Men earn an average of £32,000 – a £2,500 difference.

The results could be somewhat skewed by the fact that women only represent just over 11 per cent of the survey, though this is roughly in keeping with the number of women said to be employed in the games industry, which we recently revealed to be 15 per cent.

The broad range of roles could also affect the figures and may not necessarily be reflected in some specific positions.



ART GLOBAL AVERAGE

Junior Artist	£19,000
Artist.....	£28,276
Lead Artist	£39,869

UK AVERAGE

Junior Artist	Not enough data
Artist.....	£30,147
Lead Artist.....	£41,189

AUDIO GLOBAL AVERAGE

Audio	£39,457
Lead Audio.....	Not enough data

UK AVERAGE

Audio	£35,386
Lead Audio.....	£52,841

CODING GLOBAL AVERAGE

Junior Coder.....	£22,302
Coder	£37,157
Lead Coder.....	£45,649

UK AVERAGE

Junior Coder.....	Not enough data
Coder	£38,662
Lead Coder	£47,317

DESIGN GLOBAL AVERAGE

Junior Designer.....	£19,469
Designer	£27,830
Lead Designer.....	£40,089

UK AVERAGE

Junior Designer.....	£18,250
Designer	£23,452
Lead Designer	£36,598

PRODUCTION GLOBAL AVERAGE

Producer (Internal)	£36,005
Lead producer (Internal).....	£41,450
Production director	Not enough data
Production co-ordinator	Not enough data

UK AVERAGE

Producer (Internal).....	£37,001
Lead producer (Internal).....	£48,675
Production director	£62,000
Production co-ordinator	£25,889

QA GLOBAL AVERAGE

QA	£18,355
QA Lead	£22,997

UK AVERAGE

QA	£17,195
QA Lead	£21,700

SENIOR WRITER

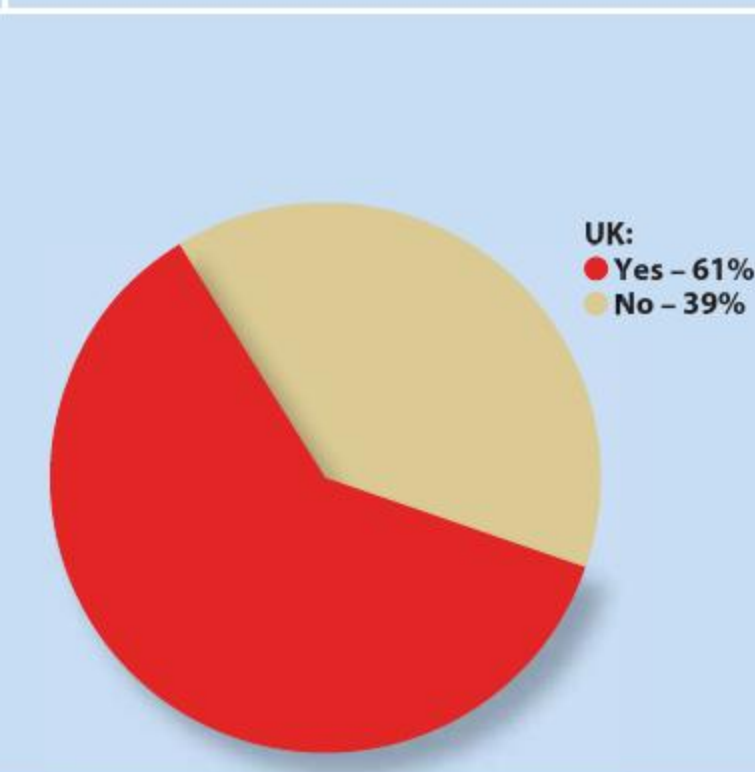
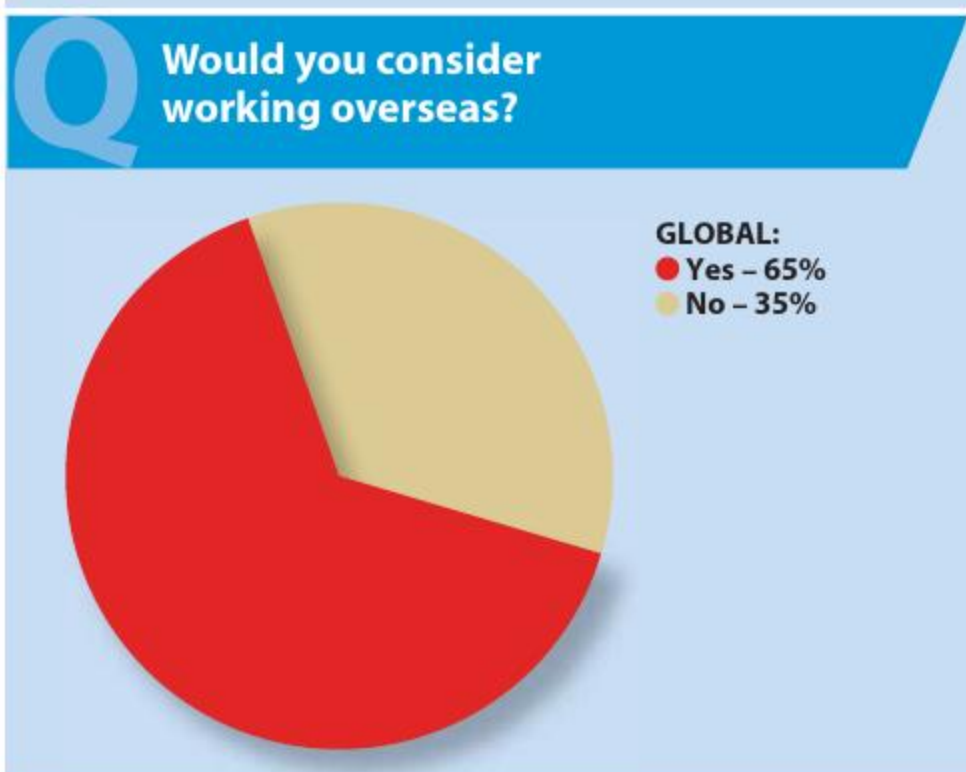
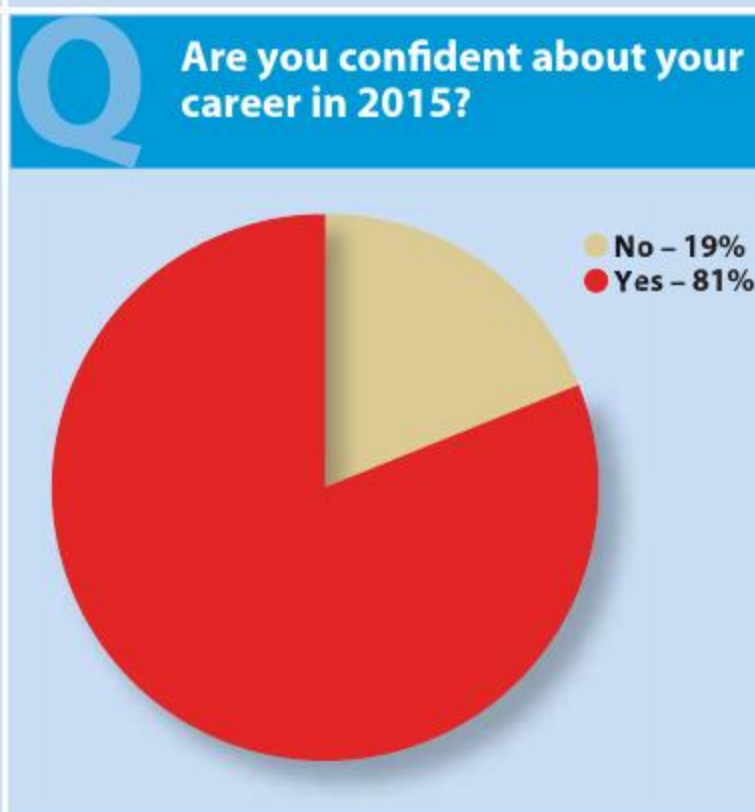
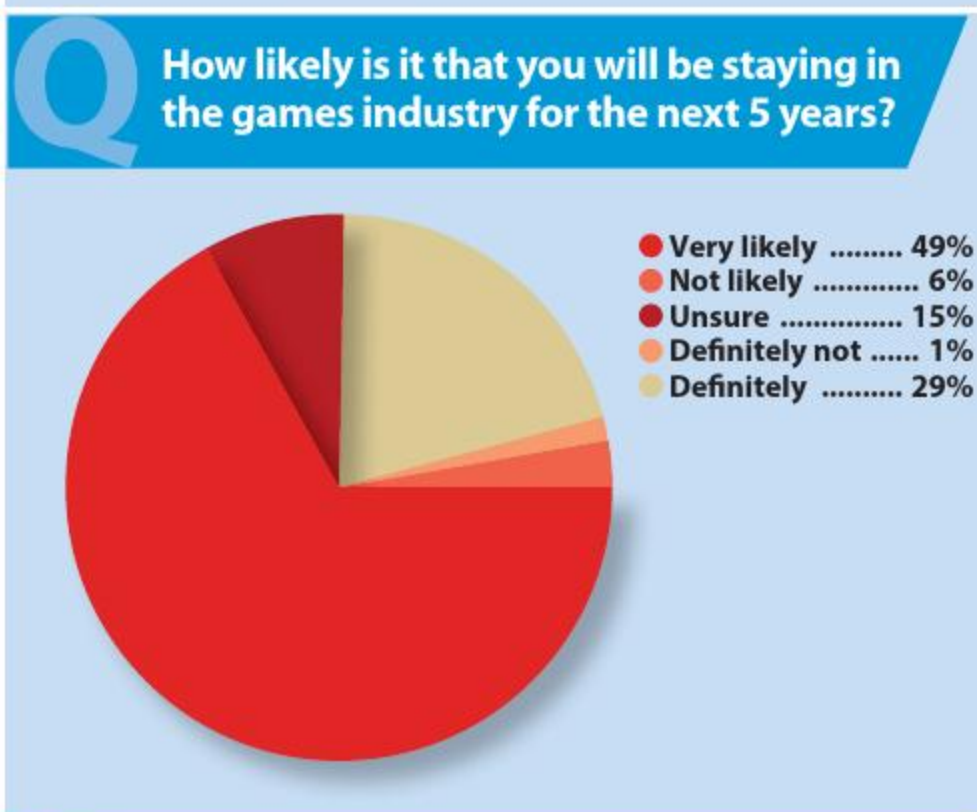
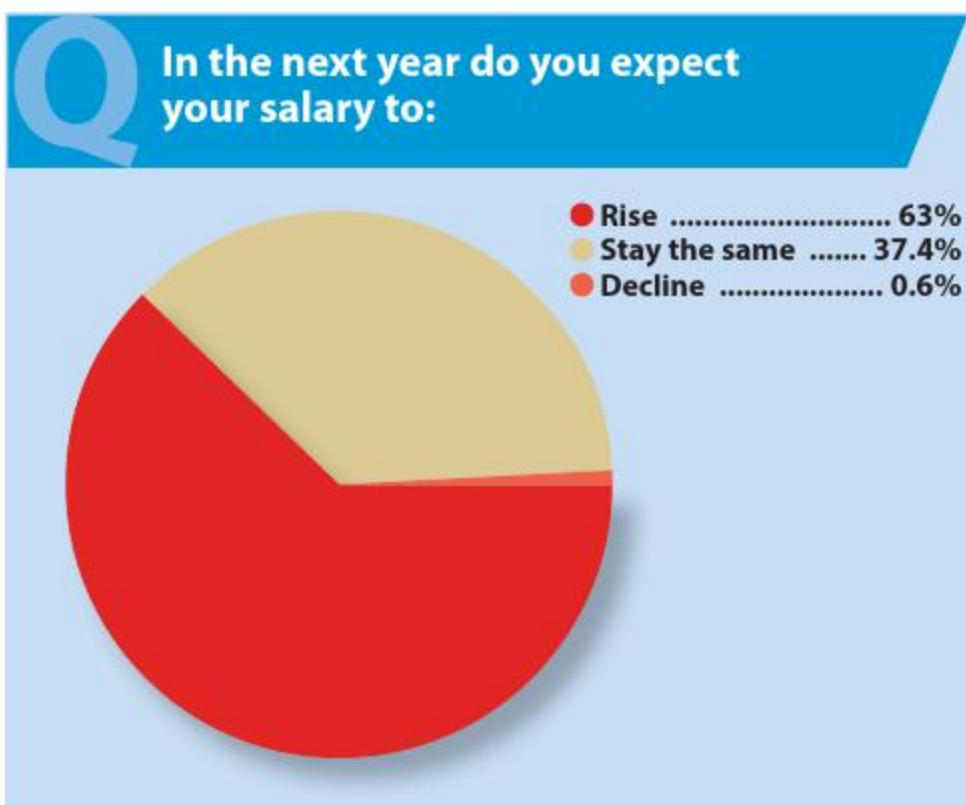
Global Average.....	Not enough data
UK average.....	£33,500

MANAGEMENT

Creative director	£55,968
CTO	£92,750
MD/CEO	£68,686
Studio head	£73,907
Technical director	£56,275
Development director	£59,114
Biz dev	£45,200



Elsewhere in our annual salary survey, we quizzed participants about the expectations for the year ahead, as well as the not too distant future. Despite the lower overall average salary, it is perhaps heartening to see some optimism when it comes to the possibility of pay rises, staying in the games industry and career confidence.





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Moving on up

So you've got a job in games development – but what's your next move? **James Batchelor** asks leading studios how devs can improve their skills and advance their careers



Top to bottom: Fuzzy Frog's Aaron Jenkins and Playground Games' Alex Wright-Manning

AS COMFORTABLE AS you may be in your current role, every working person must always ask themselves: what's next?

Promotion is the key to more responsibility, better pay, improved skills and fresh challenges. But ambition alone is not enough to prevent your career from stagnating, as many leading studios told *Develop* this month.

"I encourage people to become brilliant by enhancing their skills," said Reflections' HR manager Nicola Sharp.

"An artist must continue to create work for their portfolio; a programmer has to make their own games and experiment with new technology. A proactive approach to expanding one's own skills and knowledge is a great thing to see; it helps you to stand out from the pack and is frequently rewarded."

Creative Assembly's HR business partner Sophie Malik agrees, adding: "Follow your passion and be determined to make it happen. It requires concerted effort to rise through the ranks, regardless of your area or platform of choice. Be focused and pragmatic about what's needed for the change – you'll need to learn the ropes before you can break into a new field. It's often worth the effort – the experience you can bring from one job to the next could make all the difference."

"A developer should always welcome opportunities to take on new responsibilities outside their day-to-day tasks."

Alex Wright-Manning,
Playground Games

Playground Games' head of talent Alex Wright-Manning reminds devs that taking on a more senior role generally means more responsibility – but this is nothing to fear.

"Whether a more management-focused workload, more challenging tasks, or the training and mentoring of junior team members, a developer should always welcome opportunities to take on responsibilities outside of their typical day-to-day tasks," he says.

"Not only will it broaden your skillset and give you an appreciation of different aspects





of your craft, it will also hone your abilities in this area, and show senior management that you're prepared to step up. Studios always prefer to fill senior roles by internal promotion."

Fuzzy Frog's Aaron Jenkins says teamwork is also crucial: "If you are a team player, don't exercise an ego and take constructive criticism to improve your work. Do all these obvious things and you will become a trusted member of the team, the go-to-guy for doing important work. Then later, when opportunities arrive for moving up the ranks, you will naturally spring to mind. The opportunity will come to you."

Erin Turnbull, HR Manager at Eutechnyx, agrees, adding that 'go-to' people "establish an area they can excel in and take ownership of". Many studios reward those who take initiative and have the confidence to step into new roles. Even being more direct with your superiors can benefit your career.

"Nail your boss down," encourages Dennis Heinert, PR boss at InnoGames. "Ask them what you can concretely do to improve. Where do they see your weaknesses, how can they help you to improve here? Which conferences can you attend to learn from the best? It is their job to give you good advice on those questions. And as a positive side effect, you show ambition and passion for your job."

IN-HOUSE TRAINING

Most studios already have systems and initiatives in place to help their teams explore opportunities for advancement.

Reflections, like many of Ubisoft's developers, frequently sends staff to develop and train in the publisher's other studios around the world, while Goodgame, Eutechnyx and Creative Assembly all run internal training programmes and performance reviews.

Browser specialist InnoGames has some interesting initiatives, too: as well as regular game jams that let developers try out new things, every Friday afternoon the company also allows all of its employees to work on their own projects, regardless of whether they're related to their daily work.

“Nail down your boss. It is their job to give good advice. And you show ambition and passion for your job.”

Dennis Heinert, InnoGames

Goodgame Studios' lead for client development Dirk Köhler says: "It is the responsibility of the superior to see the potential of ambitious team members and support them in taking their career to the next level. Such internal career development requires a lot of proactivity."

If a smaller studio – such as an independent developer – lacks the resources to provide training internally, there are plenty of courses available from universities and other third-party providers. And many studios encourage developers to look into these.

"If a training course becomes available that you feel would benefit you, your team and

ultimately your workplace, pitch it to your studio management," said Wright-Manning. "Have a clear idea of the course content, timeframe, costs and the benefits that it would offer. It's rare that a well-researched request for additional and beneficial training will be turned down."

Malik adds: "Those courses can provide devs with a strong technical background in theory, though you need to demonstrate you have a passion for development to really advance as a developer."

However, Turnbull argues that academic learning is no substitute for real experience: "We believe wholeheartedly in the value of on the job training. In an industry that moves as rapidly as games, traditional training courses are quickly outdated and often not suited to the needs of a development studio. The amount of learning and development that happens on the studio floor should not be underestimated."

HELP YOUR HOBBY HELP YOU

As we've seen in this golden age of indie games, spending time on your own projects outside of your day job can also pay off. Wright-Manning is particularly keen to encourage this.

"Expand your skillset by learning a new technology or tool," he says. "Investigate a development methodology that you feel would benefit your studio. Get together with colleagues and make a game using unfamiliar tech and take on a role that you're unaccustomed with. Working with a compact team on a side project can give you an appreciation of different development areas, and can be a lot of fun."

"Most games studios will welcome their team developing and bettering their skills by participating in external projects and in many cases may even support you if you hit on something commercially viable."

"It is however extremely important that studio management are aware of the nature of your project, as they must take into account potential conflicts of interest and contractual obligations affecting both parties." Heinert adds that it's also important to train up your soft skills as well: social graces, communication, friendliness and other traits that can't be taught by studios.

"Communication is getting more and more important as team sizes are increasing enormously," he adds. "You will not make progress if you can only offer hard skills."

One option for developers looking for a new challenge is to switch disciplines. Perhaps the most common is going from QA to programming or other aspects of development, but there are plenty of other transitions that can provide new challenges.

"Our whole industry is so dynamic that flexibility is very much appreciated and valued," says Heinert.

"My advice would be to talk to other devs in the discipline of your future choice. Ask them for their perspective. But also discuss it with the people you are working with on a daily level. What does your chief say about your career perspective in the new discipline?"

But Jenkins warns: "Think very carefully about your decision – are you sure that this is what you want? Why are you making this



Top to bottom:
InnoGames' Dennis
Heinert and Goodgame
Studios' Dirk Köhler



Top to bottom: Erin Turnbull of Eutechnyx, Nicola Sharp of Reflections and Sophie Malik of The Creative Assembly



decision? Be careful of broaching this subject with your manager as an assumption could be made that your heart isn't in your current position.

"Don't assume that you can just step into a new discipline. You will need to prove that you will be effective. Build up a portfolio or examples of your work in your spare time and prove that you can offer the required quality of work in the new discipline.

"Also remember that you may be starting with a much lower level of experience in your new discipline, which most likely means that you'll effectively be a junior grade – expect a much lower pay bracket and level of responsibility."

Köhler assures devs that taking such a pay cut should only be temporary: "You will be able to climb back up the ladder more quickly than you usually would, because you will have the big advantage of having worked in another discipline and that expertise will always help you progress at a fast pace."

HONING YOUR SKILLS

However, changing disciplines doesn't always have to require drastic changes to your skillset and day-to-day tasks. There may well be opportunities within the area you already specialise in.

"There are some disciplines that are intrinsically linked like QA, design and production, and progression between these disciplines occurs often at Eutechnyx," says Turnbull.

"Changing to a new specialism within a discipline is also encouraged – for instance from game to server programming – and we do all we can to support and provide training for this."

Shifting between disciplines essentially comes down to two options, says Köhler: specialism or management. And that choice

should be based on both your passion and your strengths.

"If you love programming and want to keep doing that, become a specialist; if you are a good communicator, adviser and instructor, become a manager," he says. "Both are great choices for a high-profile career."

Sharp stresses that devs shouldn't abandon the skills that have defined their career thus far: "Don't discount what you're good at. If you are brilliant at parts of your existing role, don't throw those skills away; they are of value to the business. Maybe you can incorporate these skills within the new role you want to move into."

“Don't assume you can just step into a new discipline. You will need to prove you will be effective.”

Aaron Jenkins, Fuzzy Frog

"If you still want to move, research the new discipline. Find out what it is like to do that job by arranging to work shadow or go on secondment, as you may hate it. It's best to try before you buy."

If a change in discipline is the only way to progress from your current role, Wright-Manning advises that you should investigate why you have not been given the opportunities you seek.

"Be open with your employer about your ambitions – it may be that they have plans for you upon completion of a particular project or milestone," he says. "Studios have to balance their commercial responsibilities with the happiness and motivation of their staff, so it may just be a case of them being

unaware of your ambitions, or needing to fulfil business or contractual obligations prior to any team restructuring."

PASTURES NEW

Perhaps the most drastic way to find new opportunities is to seek them at a different studio. Developers moving between companies is a regular occurrence, but what should you bear in mind before taking such a leap?

"The games industry is fast moving and constantly shifting so looking out for opportunities and leaping between big studios to fill roles can result in a speedy move up the career ladder," says Jenkins.

"But be careful of taking this approach as it could get messy if you get into a job without enough of the right experience. Lead positions demand experience."

"Something else to consider is that if you jump jobs too quickly and too frequently a canny interviewer will spot this on your CV and probe you with questions to make sure you are not going to jump ship at a critical moment."

Malik adds: "We would rather develop people internally and have them build their career with us as a trusted expert in a leading studio. That said, we're always interested in hiring devs from other studios who have proved their expertise."

It's safe to say there are plenty of options out there for developers that want to try something new, whether that's within their own studio, in their spare time or at a different company. But Reflections' Sharp says there is one crucial thing to remember when considering a job move.

"Don't forget why you first wanted to join the games industry and see that spirit in others," she says. "Nurture it and keep talking about it with your peers. This creates ideas and enthusiasm to make cool new things."



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Smart Casual



In a world where everyone is a gamer, designing a game for everyone means targeting an increasingly diverse audience with one product. Experts in designing the accessible tell **Will Freeman** how they think it's done



Top to bottom: Sirvo's Asher Vollmer and PlayLab's Jakob Lykkegaard

Main: Clash of Clans and Crossy Road both appeal to vast audiences, but in different ways

In the not-so-distant history of the games industry, the term 'casual' was clearly defined.

Made famous in an era where much excitement surrounded the growth and diversification of game-playing audiences, 'casual' fell from favour almost as quickly as it rose to prominence. In-jokes about equestrian-themed shovelware and the cliché of the Wii TV advert family made the concept of 'casual' something of an industry four-letter word. To this day, it's greeted in some corners with scepticism and suspicion. And yet the trend that spawned the word 'casual' has continued and accelerated. Today, more people play games than ever before, and the giants of accessible mobile gaming have seen their names enter the pop-cultural lexicon of the 'non-gaming' public.

Casual hasn't gone away. It's just shed its name. And today there are numerous releases that are accessible, broadly appealing and mass market that are also critically acclaimed, successful, admired in the industry and, in some cases, festooned

with awards. Titles like *Threes*, *Monument Valley* and *Crossy Road*.

At the same time, fingers prodding at *Clash of Clans* and *Candy Crush Saga* continue to be a regular sight on public transport across the world, as the free-to-play giants continue to make 'casual' titles into startlingly profitable brands.

“The biggest mistake I made was making a hodge-podge game that didn't really appeal to anybody.”

Asher Vollmer, Sirvo

Casual, then, has grown up. But how do you get it right, and what are the best in the field doing to design quality games with the potential to become ubiquitous?

The problem for casual game designers starts with a broad problem; the audience. If you are making, for example, a hardcore

fighter for traditional gamers, you have a niche to serve; a group to target and a defined taste to meet.

With casual games, though, your potential audience is 'everybody', or at least 'everybody with access to games'. That audience today is so vast, and so varied, it can feel impossible to meet their needs.

TARGETING EVERYTHING

So how do you make a refined game that appeals to the broadest possible audience?

"You absolutely have to still consider your audience, and that's exactly what I do," offers Asher Vollmer of Sirvo, the small team behind puzzle sensation *Threes*. "The biggest mistakes I made in my earlier games was not considering an audience at all, and making a sort of hodge-podge game that doesn't really appeal to anybody. And that would just leave me sad that nobody likes it."

For that reason, says Vollmer, he envisioned a particular audience for *Threes*.

"That audience wasn't everyone on the planet," says Vollmer. "It was everyone on the planet with a phone. So that meant making it



as native to the phone as possible, and making a game that fitted the way people use phones, such as the time they play."

In other words, the phone itself was *Threes'* intended audience. Vollmer designed for the length of time people play for on a phone, conceiving a title that was not realtime, with no timers.

"I definitely had a very broad audience, in that so many people on a planet have a smartphone, but there was still something I could design for," he explains.

ROAD TO SUCCESS

Other game designers apply a different approach to the pursuit of universal appeal. One is Matt Hall, one half of *Crossy Road* dev Hipster Whale, which saw its refined spin on 'Frogger meets Flappy Bird' delight huge swathes of the public.

"Every game I make, I try and find someone to make the game for; almost an individual," reveals Hall, who asserts this can make a game appealing to a much broader audience.

"It's like a lens; a way to focus," he continues. "To make a game that's popular with everyone, you have to make it for someone. It's about broad appeal through narrow appeal; choosing a single person that can represent your everybody. Or you might end up with a mish mash of stuff that tries to appeal to everyone, and fails."

For Hall, it is envisioning a single individual that lets him design for everyone.

For others, though, it's about considering the audience's understanding of games. Take Supercell; that relatively youthful company

behind the mobile powerhouse that is *Clash of Clans*.

"You can't assume that your audience has played games before," asserts Supercell game designer Veli Vainio.

"Experienced gamers know various tropes and conventions, such as 'shooting a red barrel will make it explode' or 'red hearts mean character health'."

But, says Vainio, for those consumers that have rarely, not recently or never played games, barrels don't equal explosions and red hearts just mean love.

You can't assume that your audience has played games before, or knows red hearts mean health.

Veli Vainio, Supercell

"Things get even weirder when you consider different symbolism in different cultures," he continues.

"You still need to communicate these things to your players in order for them to make informed decisions. At this point it's almost like you are trying to communicate to someone who doesn't speak the same language as you do."

"In such situations you need to draw inspiration from the real physical world and break down your message to the simplest form possible."

Considering the audience with intelligence and a little common sense is vital in crafting a highly successful game with the potential for ubiquity, then, but what about design beyond that conceived purely to attract the right audience?

CASUAL IS HARDCORE

To a degree, it isn't too different from the process behind a traditional or core game. At least, that's the opinion of Jakob Lykkegaard, CEO of Pocket PlayLab, which signed with the Rovio Stars publishing initiative to see its tile game *Juice Cubes* meet with significant success. To Lykkegaard, the process is a fairly straightforward one.

"There is not much of a secret in making any game accessible," he suggests. "The key is even though your game has many things that players can do, you always focus them on learning one thing from it at a time."

"The quality of the game is pretty much about audiovisual presentation, whether or not the game is casual or hardcore; quality is still based on the consistency of the interactive audiovisual, and this principle works the same way regardless of whether or not your game is a casual game."

And regarding depth, Lykkegaard is confident casual games can be relatively complex, demanding, and absolutely boast meaningful interactive substance.

"A match-three game with a level designed to be solved by making a specific move, or [with] obstacles that require complex interactions to get rid of can also put players in deep thought [needed] to solve them."



Above: Supercell's Veli Vainio says cultural differences must also be taken into account when developing games for a broader audience

Main: Monument Valley has been celebrated by casual and core players alike, despite defying traditional conventions



Top to bottom: nDreams boss Patrick O'Lunaigh and Hipster Whale co-founder Matt Hall

Main: *Threes'* success is due in part to its simple tile-sliding mechanic

Lykkegaard continues: "A good casual game has a shallow learning curve and introduces new challenges with a slow pace, allowing players to pick up and stop playing any time they like, but always return for more."

Over at Ustwo, the East London outfit behind the hugely adored *Monument Valley*, the approach is a little different, and delivering a quality casual title is about what studio tech director describes as a balance between authenticity and accessibility.

"Authenticity means we needed to keep the game purely focused on the strongest and most original elements of the concept; not get sidetracked into unnecessary features and to maintain the authorial voice," states technical director Paul Pashley.

This often meant the team making decisions that were contrary to accepted wisdom, but according to Pashley, sometimes countering convention felt more in keeping with the tone of the rest of the game.

"For example, the 'In Which' text that proceeds each level," he offers. "It sounds crazy to 'give away' the narrative of a level, but it felt right to us."

As for accessibility, it came down to the tried and tested method of user feedback.

“People aren't going to have a chance to tell their friends if they're only playing a game for two minutes.”

Matt Hall, Hipster Whale

"We made sure that every feature was understandable to everyone that we user tested on, and that no one felt alienated by any aspects of the game," explains Pashley. "This meant looking at things with a fresh, child-like perspective and not assuming knowledge of familiar gaming tropes."

SYSTEMS OF ELEGANCE

Looking at releases like *Threes*, *Monument Valley* and all the others mentioned above, there is much interactive variety: from *Crossy Road*'s twitch to the god gaming of *Clash of Clans*, but one consistent element is a simplicity and elegance not at the expense of engagement and entertainment; something not all casual leaning games get right.

"You can find a lot of games that are too simple," offers Sirvo's Vollmer. "There's a lot of them on the app stores that I think are too boring. Elegance of design is, in a way, the resistance to compartmentalising mechanics. That's a very fancy way of saying that the core mechanic of whatever your game is should have lots of repercussions."

It's clearly an approach Vollmer applies absolutely to his more recent games, such as the forthcoming *Close Castles*. In *Threes*, sliding a tile has multiple effects. It rearranges many of the on-screen tiles, it spawns in a new tile, and it merges some tiles.

"That's a lot of things happening at once all connected to this one verb that is moving a tile," continues Vollmer. "Sometimes the player doesn't want all of those things to



happen at once, but then the game is managing those things.

"So, I feel you can get a lot of mileage and elegance from overloading a lot of repercussions onto a verb. And that can be very appealing. That said, games like *Monument Valley* and *Crossy Road* approach it very differently."

Over at Supercell, meanwhile, there's a particular focus on core loops; something that won't surprise many who have read up on their free-to-play design theories. But the core loop is something Vainio believes can serve first and foremost as a bastion for simplicity in game design.

"Find out what makes your game fun and build the core loop around that," he advises, before sharing more tips from one of the planet's most successful game studios: "Only after that should you start adding more systems to the game. Always ask yourself this question when adding a feature: 'will a typical player benefit if I add this?' Prioritise

features that the majority of your players will find interesting or useful."

RETAINING DESIGN

Designing a causal game is just the start, of course. In an era when the developer's job is never done, maintaining, updating and adding new content introduces a whole new skill set to the business of casual. Each is a subject for a feature of its own, but on the matter of designing casual games, retention is something that can be fostered before release, as part of the creative process of making a game.

"One thing I've learned from those people in the world of monetisation, user acquisition and data is about retention," reveals Hipster Whale's Hall. "I'd not really thought about retention before, until I was speaking to one of the experts at a game conference."

Over time, something became obvious to Hall; even if a title is as successful as *Flappy Bird*, it doesn't matter if people are only playing for two minutes.

"We saw half the people that had downloaded *Crossy Road* playing regularly two weeks on," Hall says. "That's insane, and it creates a huge window for people to share the game, and that spreads. It went on for weeks. People aren't going to have much chance to tell their friends if they're only playing a game for two minutes. So we gained from a concept from that dastardly world of free-to-play; the idea of how important it is to retain players."

And how did *Crossy Road* retain with such energy? Designing good characters that people wanted to share, according to Hall. It was an area of particular focus as the game was designed, and it's proved a powerful tool in the viral journey *Crossy Road* has taken.

The design of simple games is certainly a complex task, but one thing is clear: with a measured approach to your intended audience, and careful forethought about platform, mechanics and simplicity, there remains ample opportunity to make a quality, successful, broadly accessible game.

CASUAL REALITY

WITH CONSUMER VR creeping ever nearer, and Samsung and Oculus' Gear VR mobile-based headset underway, a new opportunity for casual game design is underway.

One studio already ceasing that opportunity is nDreams, formerly renowned for its work on the PlayStation Home platform. nDreams currently has two Gear VR projects underway; *Perfect Beach*, a decidedly minimalist relaxation experience, and *Gunner*, a sci-fi shooter which – despite its theme and genre – offers immediate, accessible 'look and shoot' gameplay.

"We have looked at how people use VR, and found that it's quite different to the way people play traditional games," says nDreams CEO Patrick O'Lunaigh on the subject of casual design for virtual reality. "People want to explore and look around much more, and there is much less benefit to fast paced action.

"So that was our starting point: what feels natural in VR?"

nDreams is aiming its coming VR games at the widest market possible, so has not opted for supporting niche peripherals exclusively serving the hardcore audience.

"That means making sure the control system isn't complex, and the gameplay doesn't require the reaction speeds of a ninja," explains Patrick.

"It means having hints for puzzles and making sure people don't get stuck with nowhere to turn. But making an accessible game that almost anyone can pick up and play doesn't stop it being deep and rich in terms of gameplay."

nDreams is confident that while it may take more time of the core Oculus Rift and platforms like Sony's Morpheus, Gear VR has a far greater chance of attracting a significant casual audience with relative speed.

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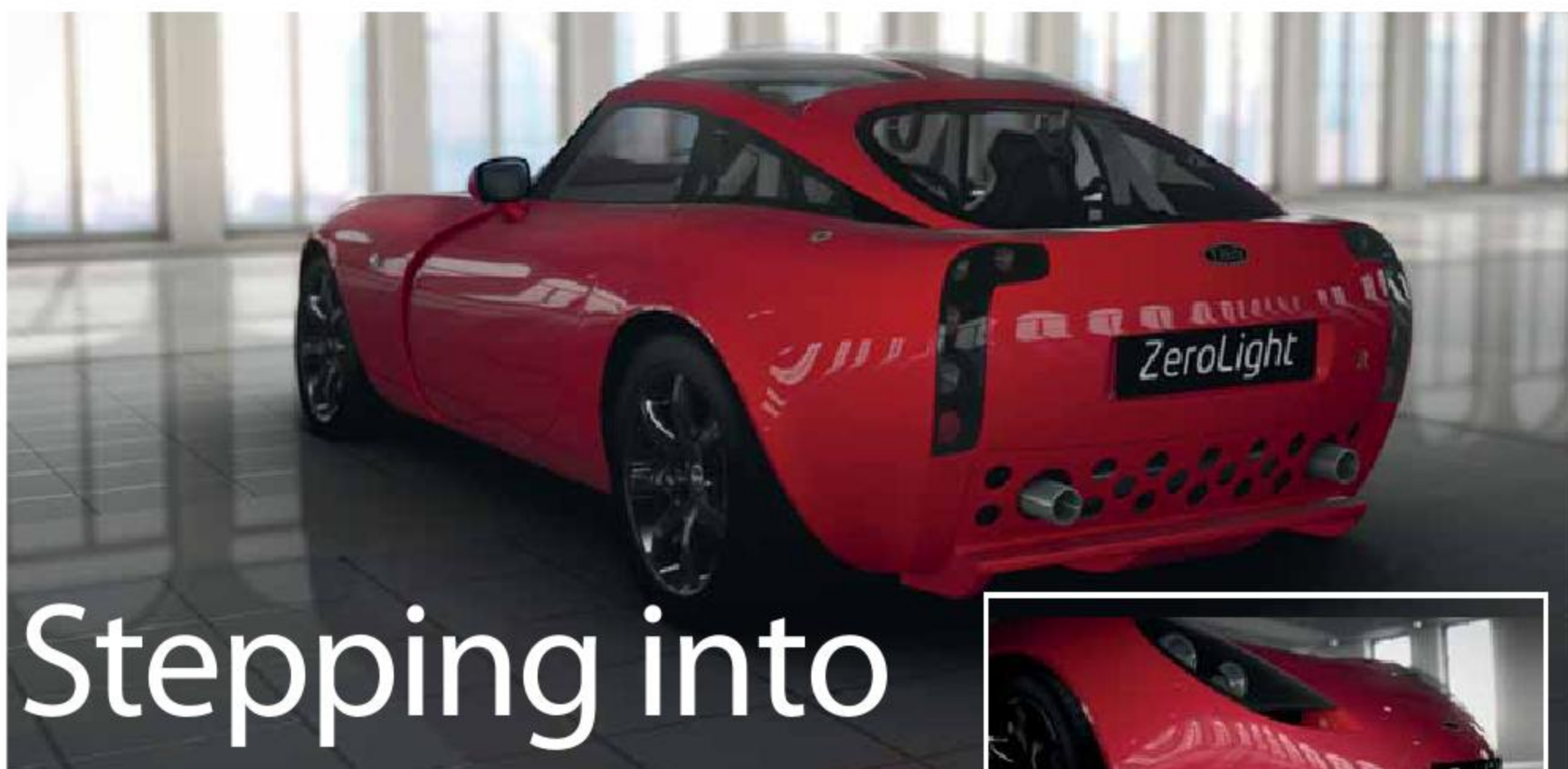
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Stepping into technology



Graphics specialists aren't limited to games studios when seeking a new challenge. ZeroLight technical director **Chris O'Connor** discusses how the visualisation industry is the natural progression for passionate technologists



ZeroLight's Chris O'Connor says a background in games development will give tech specialists a headstart when working in visualisation

What are the responsibilities/challenges of working in technology at ZeroLight?

I've been working in technology for the past eight years, starting out as a graduate programmer and working my way up to tech director. Tech as a discipline is all about problem solving and overcoming challenges. I've found ZeroLight brings an extension of the challenges I faced working in games.

For example, we pride ourselves with being able to visualise offline rendered quality assets in real-time at high frame rates. One of our early challenges was to hit 60fps and this seemed nearly impossible, given that for years it was tough to get games running at 30fps. But in an agency environment where I had the time and resources to dedicate to this, we have now managed to hit 120fps with a 10m poly scene, preparing our virtual reality and virtual showroom solutions for future hardware.

Other challenges include working with emerging technologies and ensuring our work meets the highest standards of global brands. But these are also big positives since they provide the opportunity to excel with the latest technologies and hardware. For example, working with three Titan Black GPUs in SLI provides the power to do just about anything you could dream of, and getting a new VR device always creates a lot of excitement around the studio.

What do you think makes a good tech programmer at a company like ZeroLight?

Aside from high-level technical knowledge, we fundamentally need our programmers to

be great problem solvers. Many technical challenges require the programmer to think outside the box. In most cases, when we overcome a challenge we're the first people to have ever done so – and that kind of environment needs a specific outlook and capability to excel in.

“Many games techniques are used to get amazing graphics at high frame rates.”

Chris O'Connor

In games, there was a clear way to integrate features within technology. With ZeroLight, everything has to be questioned; the size of assets and the amount of data often means we have to be creative at every stage.

When we're recruiting – as we are at present – I'm looking for candidates with a creative approach to problem solving, who can push themselves out of their comfort zone to find solutions. Every day we're working on new features for the latest hardware, so it's a technologist's dream role.

Is there a natural overlap between games and modern visualisation?

The knowledge some of the team gained from developing games has enabled us to set ZeroLight apart from other firms. We're used to extracting every last drop of processing power out of games consoles. The current generation of consoles are still far behind our

target hardware, and even PC development does not target the same high spec hardware that I'm working on, but many of the same techniques are used and enhanced to get amazing looking graphics at high frame rates.

What do you prefer about working in technology at ZeroLight?

Aside from working with such high spec hardware and really pushing the boundaries of technical achievements, I also really enjoy the relationship we're able to build with the customer. We work very closely with clients at every stage of development, which means we have a constant stream of feedback and we're really able to push the bar on the finished product.

Why is working at ZeroLight a good career move for games programmers?

For those who are passionate about technology, ZeroLight feels like a natural next step. I've gained a huge amount of knowledge from working in games and I want to apply this to the very latest hardware for commercial partners who share our vision. ZeroLight allows me to do this, as well as giving me the opportunity to be part of creating something that itself is at the forefront of emerging tech.

The company places a high value on R&D, which is the core of what any passionate tech programmer does. It's fantastic to work in an environment where coming up with great ideas and high spec solutions is our priority. *If you are interested, visit zerolight.com/careers for more information on current roles.*

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MOVERS AND SHAKERS

Ex-DICE and Capcom devs form new studio, Fugitive Games

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RECRUITER HOT SEAT

The Alien: Isolation and Total War dev is looking for new talent

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GET THAT JOB

David Smethurst from Team17 reflects on his role as head of programming

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Dovetail Games hiring over 50 people

We speak to the simulation specialist about its expansion plans for 2015

by James Batchelor

THE NEW YEAR always prompts a wave of studios looking to bolster their workforce with fresh talent, and one firm keen to expand its development team is the UK's Dovetail Games.

A specialist in simulation games such as *Train Simulator*, the firm ramped up its games development efforts last year following a deal with Microsoft to not only re-release *Flight Simulator X* but also build new titles based on the same tech.

As part of this new chapter for Dovetail, the company is hoping to attract more development talent, as VP of HR and facilities Gemma Johnson-Brown explains.

“We like people to show us how they can be a good fit for Dovetail.”

Gemma Johnson-Brown

“Over the next year we plan to hire over 50 people across all areas of development and are particularly interested in those looking to for the next step in their career,” she says.

“At Dovetail, we strive to create an environment where people can deliver the best work of their careers whilst working sensible hours. We discourage crunch periods and keep an eye out for people working over their contracted hours.

“We have a strong ethos of promoting and developing within, and are working at developing a training and growth strategy that not only develops those that can lead a team, but those that are specialists in their areas but don't wish to move into management roles.”

Johnson-Brown lists a number of perks that should appeal to job-seekers – including plenty of holiday,

pension, flexible working hours, and vouchers for child care and eye care – but one of the main benefits is the studio's location.

Based in Chatham, Dovetail's HQ is close to London, the seaside and Ebbsfleet, which offers strong European connections. Many of Dovetail's staff have also relocated in order to come and join the team.

Given the company's specialist focus, Johnson-Brown advises that applicants think carefully about whether or not they have the relevant skills for simulation projects.

“Dragons and fantasy characters might look great,” she says, “but we're looking for people that have an ability to create photo-realistic train stations and fishing lakes, so we like candidates to show us how they can be a good fit for our company.”

“We spend a lot of time creating our job descriptions so take your time to read them. If you don't have the essential skills we're

looking for, do you have transferable skills that can compensate for that? If so, ensure that we know about them.

“We offer our employees the opportunity to make real decisions and really make a difference to the products we create and publish, whilst being part of a team supported by a company that cares about you and your career.” ■



MOVERS AND SHAKERS

This month: Fugitive Games, Dovetail Games, The Foundry, TinyBuild and Super Evil MegaCorp

FORMER DICE DEVS OPEN NEW STUDIO FUGITIVE GAMES

FUGITIVE GAMES ■ Alumni from EA DICE have opened a new studio and are seeking funding for their first title on Kickstarter.

Fugitive Games has been founded by four development veterans – two of these are from *Battlefield* studio DICE, while others have worked at Capcom and SCEA.

BEN JONES (left) – former lead designer on *Battlefield 4*'s premium content – has taken on the job of development director, while fellow DICE veteran **MARC JANAS** (far right)

will take up the position of project architect.

The former DICE duo are joined by **ALDEN FILION** (middle left) as art director – having served in the same role for *Earth Defense Force* and *Eat Lead* – and creative director **ROY ORR** (middle right), formerly of Suda51's company Grasshopper Manufacture.

The team is crowdfunding open-world space sim *Into the Stars* on Kickstarter.



DOVETAIL GAMES ■ The simulation company has made two new hires.

STEPHEN HOOD has joined the studio as creative director. He previously served at Codemasters in the same role where he was instrumental in the re-launch of the Formula One IP. Prior to this he held roles at PlayStation and Lionhead.

Meanwhile **NICK ROOKE** has stepped into the role of head of third-party business. Rooke was previously third-party publishing account manager at Microsoft, where he worked for eight years. Prior to that he was employed at SCEA's development relations team.



THE FOUNDRY ■ Development veteran **DAVID ATKINSON** has joined the software firm as head of design for commercial products.

He moves to the company from Saddington Baynes, where he worked on campaigns for Honda, Infiniti and Dyson. Before this he worked in product design for Autodesk.

"The customer-centric way in which The Foundry develops solutions is one of the things that I found most attractive about the company," said Atkinson. "By taking this approach, our solutions can preserve the artistry of the product designers, while elevating the design industry as a whole."



TINYBUILD ■ **MIKE ROSE**, formerly of *Gamasutra* and *Pocket Gamer*, has left the games media and has moved to indie developer turned indie publisher TinyBuild, where he will be working in the company's dev relations department.

"I'll be helping TinyBuild find some fresh new games to bring to the masses, and using this bright orange megaphone to make sure everyone hears about it," said Rose

"I was previously a video game critic and writer – over the last eight years, I've written for over a dozen different websites, including *Gamasutra*, *Pocket Gamer*, *Kotaku*, *Gamezebo*, and more."



SUPER EVIL MEGACORP ■ Former professional *League of Legends* player **GEROGE 'ZEKENT' LIU** has joined the mobile gaming firm.

Liu has moved to the studio as video community manager. He is well known on the eSports scene, with 17m views on Twitch and 2.4m views on YouTube.

In his role he will be managing Super Evil Megacorp's official Twitch streaming channel for upcoming MOBA *Vainglory*, and will be working with other streamers to build a community.

Liu is best known for competing in *League of Legends* tournaments, and was previously a coach for media brand Curse's eSports team.



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The *Surgeon Simulator* dev is based in a former Bank of England print works, and is no stranger to spicing up the office with animal suits and other strange shenanigans



RECRUITER **HOT** SEAT

Creative Assembly's Sophie Malik on how to land a job at studios like the Total War and Alien: Isolation dev

What differentiates your studio from other developers?

Creative Assembly has been making awesome games for over 27 years and our portfolio is totally unique. We're known for our versatility, and that's made possible by console and PC teams that are wholly dedicated to creating great games and supporting the studio.

We recognise that we're fortunate to have such great people working here and we support them to stay at the top of their games through great benefits, amazing training opportunities, and a work/life balance that strives to keep people secure and happy at work and at home.

It's certainly a priority for our studio director and leads to keep in touch with what works for everyone in the studio and what can be improved to push us forward.

Encouraging fun, quality and deep friendships at work makes our games better, and the creative chemistry that comes from that is truly unique to us at Creative Assembly.

How many staff are you looking to take on?

Right now we're looking for over 20 people in both console and PC. We have more great projects in the pipeline, so watch this space.

Our studio's recent successes with *Alien: Isolation* and *Total War* helped raise our profile as an exceptional employer and we're excited to speak with talented people who like what they see.

What perks are available to those working at your studio?

On top of the competitive salary scheme and health plans, our employees get awesome training opportunities. Last month, Scott Meyers recently met our programmers and held a three day FAQ with them about C++. That was an awesome week and a few of us were quite starstruck.

We also have a homey breakout area with fresh food, ping pong and game stations (spectators included).

What should aspiring devs do with their CV to get an interview?

Shape it to reflect who you are as a professional and as a unique person who loves games. We read every CV, so it's worth your time to outline how you meet our technical criteria and why you're interested in working with us.



BIO

Name: Sophie Malik

Title: HR Business Partner

Developer: Creative Assembly

Country: United Kingdom

Who is the best interviewee you have ever had and how did they impress you?

The best interviewees all have one thing in common – they come prepared. By that I mean that they read about the studio's work, understand how their experience fits into the team's work, and have examples of how they've raised the bar in their own work.

What advice would you give for a successful interview at a studio like Creative Assembly?

If you get an interview at CA, we're interested in hearing more about you. So my number one tip for a successful interview is to help us visualise you working with us.

How have your recruitment needs changed at your studio?

The future is bright and we're hiring

more than ever to get there. 2015 is really a fantastic year to join Creative Assembly. From a recruiting

“The best interviewees all have one thing in common: they come prepared.”

Sophie Malik, CA

standpoint, *Alien: Isolation* and *Total War: Rome II* are not just great games – they're a reflection of our company's talent.

Our console and PC teams make games that push programmers, designers, and artists to raise their standards, whether they work here or elsewhere in the industry. Our recruitment plan is aimed at driven

people who can join us and help us make history.

If you have recruited internationally, what has the process been like?

It's a breeze for our candidates; we manage the visa process and offer a comprehensive relocation package.

We're up to date on visa regulations and stay in touch with candidates from day one.

Why should game developers join you when indie and self-publishing have become so much more accessible to them?

Creative Assembly benefits greatly both from our own history and from Sega's history as games pioneers. Developers know we offer them a career in the games industry that's exciting and secure – and that's pretty awesome.



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GET THAT JOB

Development specialists offer advice on how you can bag that career leap

THIS MONTH: HEAD OF PROGRAMMING



TEAM17'S David Smethurst discusses his ascent up the career ladder to head of programming

What is your job role?

I am the head of programming at Team17. There's plenty going on in my role, from talking with the programmers employed here to ensure they are supported to working with the producers to plan out the staffing levels and time needed to complete programming on projects.

I am also responsible for looking after the various technical solutions we use for each of the games, evaluating third-party engines, tools and SDKs to make sure we have the best possible for each of the platforms we target.

What qualifications and/or experience do you need?

Academically we look for people who have degrees in Computer Science, Software Engineering or a Games

Programming course at University level. Our main focus is looking for individuals who can program in C++ and have a passion for writing computer games.

We look for devs who show a genuine interest in programming and gaming.

David Smethurst, Team17

How would someone come to be in your position?

My career started off after leaving University and working outside of the games industry for nine months.

During this time I did a lot of research on programming games and bringing my knowledge up to a level where I could confidently apply jobs.

Since then I have worked at three different companies, spending time improving my programming skills, problem solving and learning from others around me while I went from role to role and ended up as a lead programmer before applying for Team17.

If you're interviewing someone, what do you look for?

We look for individuals who show a genuine interest in games programming and playing games, with the ability to solve problems logically and without unnecessary complexity – the simplest answer is usually the best answer.

We also like to see people who want to go the extra mile to get something done well and ensure it is working correctly. As it happens we do actually have positions available currently at the studio, and any interested persons should check out:

www.team17.com/careers.

If you've got job advice to share, email acalvin@nbmedia.com

Employee HOT SEAT

Associate art manager Kelvin Janson on getting a job at Forza Horizon developer Playground Games

What do you do at the studio?

I'm the associate art manager, so it's my role to manage and support the art team and aid cross-department communication. I have a broad focus, working with character, animation, lighting, VFX and UI departments, and I also spend a lot of time with the engineering and design teams, helping to achieve the goal of crafting fantastic content for our games and players.

How did you get your current job?

I've spent the majority of my career working on triple-A console titles at studios like Sony and Codemasters. When I saw the position advertised at Playground, the description of the role was perfect for what I enjoy doing, and the ethos of the company

matched my own. It was also a great opportunity to work with some very experienced professionals at a relatively early stage in the developer's life.

Whatever level of seniority you are, if you have an idea, we want to hear it.

Kelvin Janson, Playground

What perks are available to those working at the studio?

Perks wise, we have some cool stuff: fresh fruit daily, free and subsidised snacks, cake afternoons, PG-branded

merchandise, studio pub nights with a Playground bar tab and a comprehensive games library.

As for the company benefits, as well as a great wage structure, all the staff here get private healthcare, company pension, life assurance and a share in our royalty scheme. We also have a really generous referral system, 25 days holiday, and additional 'duvet days'.

What is the recruitment process like at your studio?

It's quite straightforward and we like to move quickly. If we see a CV or portfolio that ticks our boxes then it's straight to either a Skype or onsite interview. They'll meet the department leads and depending on the discipline there's potentially technical tests to complete.

We also like to try and involve the wider team – peer review is a great way to get alternative viewpoints, and our directors like to get involved in the process too – they're very hands on.

If you impress us, we put together a great package, and our director personally contacts every candidate we offer a role to.

What was your own interview like?

I had two on-site interviews. The first one was meeting the art manager



and the producers. The second interview was a couple of days later. I met more of the team; artists, engineers, producers, and designers. It was great talking to like-minded people who wanted to keep pushing the limits of technology and were always striving for the games to look and play better.

Describe what the atmosphere is like at your studio.

It's a very passionate studio where everybody is pulling in the same direction to make the best games they can.

It doesn't matter what discipline or level of seniority you are, if you have an idea about how to make something better we want to hear it. Innovation is part of what we are as a company, and our structure helps to nurture that.

SKILLS AND TRAINING

This month: University of Lincoln

University of Lincoln
Brayford Pool,
Lincoln, Lincolnshire
LN6 7TS
UK

T: +44 (0)1522 882 000
E: course-enquiries@bradford.ac.uk
W: www.bradford.ac.uk

THE UNIVERSITY of Lincoln runs both a BSc programme in games computing, as well as an extended MComp games computing course.

Covering the crucial technical aspects of development, there are also extra modules available on the courses to give students a more rounded education.

"Our courses are distinct in that, as well as the vital technical aspects of Games Computing, we have modules on Games Design and Games Studies – where we explore games as products of a design process, and look at societal, cultural and ethical aspects of games," says University of Lincoln senior lecturer John Shearer.

"This supports individuals' understanding of games in their wider context."

The University's games programmes also explore other topics, including programming, mathematics, game engine programming and other specialist topics such as artificial intelligence and social gaming.

Speaking to *Develop*, Shearer says the courses allow students to build games at all stages of the programmes. At level one, the games design module lets students engage with level design, while Games Studies involves prototyping games using a rapid prototyping environment, such as GameMaker.

In level two meanwhile, pupils get to make games as part of the Games Design 2D and 3D graphics modules, while Games Programming focuses on building a title that showcases technical skills. This all culminates in a semi-public showcase with invited industry partners, as well as students and staff.

Level three tasks students with building a project from start to finish, on a specialised aspect of games that the individual finds most interesting.



The University of Lincoln gives students access to tools such as Unity, UE4, GameMaker and more

When developing these games and studying, students have access to a number of tools and languages,

“Many modules allow students to use tool-chains of their choice, and our staff have experience supporting this.”

John Shearer

including Unity, Unreal Engine 4, GameMaker, Visual Studio 2013, PhysX, OpenGL, XNA/Monogame, LibGDX and github.

"As well as requiring some specific tools, many modules – especially

Final Year Project and Games Programming – allow students to use any tool-chains of their choice, and our staff have substantial experience of supporting this plethora of tools," says Shearer.

The courses are accredited by the IGDA, The British Computer Society, the Institution of Analysts and Programmers and the British Interactive Multimedia Association.

The University also has a number of links with studios including Criterion, Hitpoint Games, EA, Rockstar and Blast Theory.

Graduates from the University have gone on to secure jobs in the industry, including at firms such as EA, Rockstar, Sumo Digital and Team17.

One notable alumni is Criterion technical director David King, who has worked as tools engineer on titles such as the *Need for Speed* franchise.



INFO

Courses: BSc Games Computing, MComp Games Computing

Established: 1992

Country: UK

Staff: Dr. John Shearer (Senior Lecturer, Programme Leader), Dr. Patrick Dickinson (Senior Lecturer, Deputy Programme Leader), Dr. Grzegorz Cielniak (Senior Lecturer), Mr Mark Doughty (Principal Lecturer), Mr Derek Foster (Lecturer), Dr. Kathrin Gerling (Lecturer), Dr. Ben Kirman (Senior Lecturer), Prof. Shaun Lawson (Professor of Social Computing)

Notable alumni: David King (Criterion)



University of Lincoln alumni have gone on to obtain jobs at top UK studios including Rockstar North, Criterion, Sumo and Team17

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KEY RELEASE: APP GAME KIT 2

The Game Creators
discusses its latest
engine for mobile
P39



HEARD ABOUT
How BioWare crafted
the audio for one of
its most ambitious
games ever
P40



UNITY FOCUS
How Amplitude
harnessed and retooled
the engine for PC title
Endless Legend
P43

Mischief makers

The Foundry has opened a new subsidiary aimed at supplying accessible art tools for a broader audience. **Develop** spoke with the team to discover what makes this software unique and how it can be used in games



MADE WITH MISCHIEF is a new pen-based sketching program for artists designed for the mass market, and could be set to rival other leading tools currently available today.

“The infinite canvas is liberating as you won’t have to decide before you start how big things are.”

Sarah Frisken, Made with Mischief

The innovative tool, called Mischief, caught the interest of Modo and Mari company The Foundry last year, which followed up with an acquisition of the firm and even opened a brand new subsidiary of The Foundry under the name, which will focus on mass market, easy-to-use programs for creatives.

The software is built for both Mac and Windows, and is designed to be as smooth and accessible as a physical pencil, and has features such as an infinite canvas and infinite zoom.

Mischief itself is powered by Adaptively Sampled Distance Fields (ADFs) that provide

high-quality stroke rendering, are amenable to hardware-based rendering to help make drawing more responsive, are compact to ensure small file sizes, can be scaled without introducing pixelation artefacts and can accurately represent richer and more complex shapes than traditional vector-based stroke representations.

“It has a different kind of representation for how you do strokes,” explains chief scientist and Made with Mischief founder Sarah Frisken.

“So it has the quality of drawing of a system like Photoshop where you can use very nice textured brushes and you can get some very nice effects, but at the same time, this is infinitely scalable.

“In addition to that there’s an infinite canvas, so you can draw anywhere you want and you can zoom in. For the zoom factor, the ratio is 50 trillion to one. So that’s kind of like if you’re sitting on the moon looking at the Earth, and you were looking at someone’s garden, and able to see a little flower.”

INFINITE POSSIBILITIES

The infinite canvas and zoom are two of the key features built into the tool that make it an attractive proposition for artists. The infinite



Made with Mischief president Christopher Kenessey wants Mischief to be as accessible as possible to both aspiring and professional artists

As well as the full version, a free release has been made available that includes six brushes and a basic set of colours



zoom allows artists to add minute details barely visible to the naked eye, while a further innovative use can involve drawing a full picture that is only visible by zoom, something that could provide an interesting new way to read comics or perhaps one day interact with gameplay.

One example of using that infinite canvas is that it encourages artists to instantly test new ideas and lets them make mistakes, while enabling them to start afresh and learn from previous images – by being able to revert back to all the various stages of the drawing.

The infinite canvas also has other uses outside of art, like an interactive mind map for artists or teams to discuss and plot ideas.

"It's really liberating because you won't have to decide before you start how big things are going to be," says Frisken.

"And you can do these little doodles and sketch all day, and at the end of the day you can pick what specific image you may want, and print it out big enough to make a poster. You can do that because you can export at any resolution, at any size."

MADE WITH THE FOUNDRY

Given its broad appeal, Made with Mischief has taken efforts to ensure the tool can be run on a number of devices, and not just those that cost thousands of pounds. To that end, *Develop* has seen the software run on devices such as Microsoft's Surface Pro, helping ensure it can be run on less 'high-end' devices. However, there are still some kinks to work out for lower-powered hardware, but it's something the firm is keen to solve as it aims to achieve accessibility for all.

"It's designed so the drawings are always immediate and responsive, but if the file gets big and you're panning it can get slow," she says, before Kenessey adds: "We're actively working on that. We'll solve that in short order. So you can always draw, it's just it's a bit slow. It can be used on a MacBook Pro."

The tool has been made available for an upfront fee of \$25, which includes all preset brushes, a full colour palette, custom swatches and the ability to export PSD files. A free version of the software has also been released that features six brushes and a basic set of colours, but still includes the infinite canvas. Potential users can also check out the full tool for a 15-day free trial period to test out whether Mischief fits their own personal needs or not.

Over time, The Foundry also plans to release in-app purchases to users, offering the option to buy additional features as they are released.

Kenessey said The Foundry was shying away from the subscription model on this tool – something increasingly seen in the space, with the likes of Unreal Engine and CryEngine both adopting pay monthly options – and is instead going ahead with an upfront plus IAP hybrid model as, after talking with artists, they found "a lot of different people don't want to pay subscription for something that's inexpensive".

And as with free-to-play gaming of course, the business model could end up being more lucrative than a higher-priced tool featuring more options.

"We asked people, if your son or daughter came to you and wanted to buy this, would you be happy to put a dollar a month on your credit card?" he states. "People were like no, I don't want to mess with a dollar a month on my credit card and seeing it there every month, it's very aggravating."

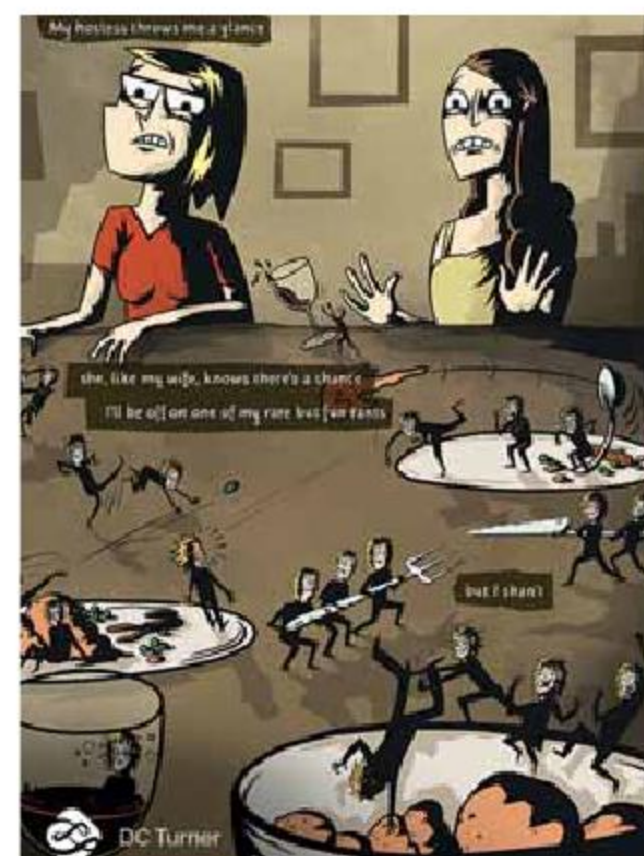
"So with that in mind, we just kind of said feed the horse what the horse wants to eat."

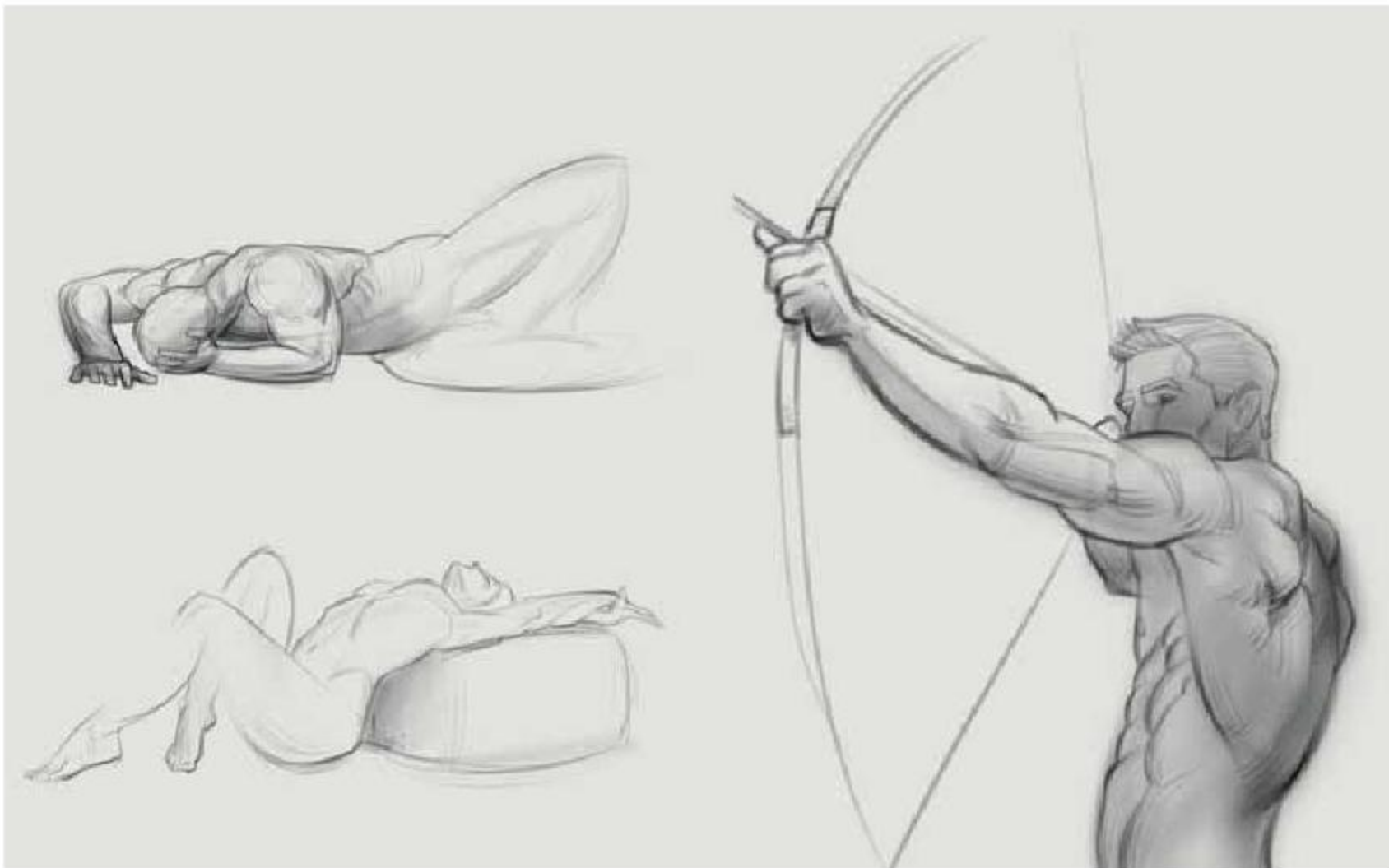
MAKING MISCHIEF

Made with Mischief founder Sarah Frisken began developing the art tool years ago while working with Disney Research. Following her departure, she carried on her research and began developing Mischief,

We came across Mischief, and it kind of made sense for this to be the starting point of a new business.

Christopher Kenessey, Foundry





Art tool Mischief can be used to create detailed artworks, comics (below left) or simple sketches of various scenes (left)

with the goal to make it as easy to use as a physical pencil on paper.

"That feel is kind of hard to describe, but when artists pick it up that's kind of the first thing they notice," she says.

Now with its own headquarters in Boston, with team members located around the world as far as London and Shanghai, Frisken had initially funded the company for several years by herself, working on both the product itself and on marketing. As the tool grew, Frisken says she knew it was time to either sell up or seek venture capital funding.

"It was just lucky," says Frisken. "A friend of mine who was a designer knew people at The Foundry and said I know you're looking for something, a home for Mischief. You need to talk to these people because they fit with what your vision is, which is this idea that we want to make art accessible to everyone."

"So it was not just throwing it over the fence, I'm still part of the team, and that's really great."

The Foundry's chief sales and marketing officer Christopher Kenessey, who has been named the president of Made With Mischief on top of his other duties, said the start-up was an attractive proposition for the firm as it has always had ambitions to take its products and reach a broad audience of creatives.

"We've been looking for the perfect product to be the seed for this whole new business," he says.

"It's very different from The Foundry business. So as part of that we came across Sarah and Made with Mischief, and it just kind of made sense for this to be the starting point."

"The test for Mischief will be 'is this so easy that will my son, daughter, grandmother be able to use this tool?'"

Christopher Kenessey, Foundry

"And it actually flows really well back to The Foundry's main business as well because everything starts with an idea, everything starts with a sketch. Whether it's design, visual effects or whether it's games, in all those three areas people think up ideas, they write it down and sketch it."

"Even if you're not like a serious artist, you just kind of feel it, it's really responsive. It feels like you're sketching on paper and it's just a fun experience."

DIFFERENT STROKES

Despite having an established business with a recognisable name in The Foundry, which grew its business extensively when it merged with Modo creator Luxology in 2012,

Kenessey says it was important to differentiate the new business to highlight its mass appeal to potential users. This is a tool, then, that is completely different from its existing suite of professional artistic software like Modo and Mari.

"If you think about who we typically market our products to, you've got visual effects artists and they've got a lot of high-end requirements to their tools," he explains. "A lot of times the tools get very complicated very quickly, and for the games market as well, and designers"

"And so when it comes to thinking about who's going to use this tool, it's going to be cartoon artists, designers, the person next door. It's going to be someone who just wants to get an idea and put it on a piece of paper."

"So it's such a broader audience that we didn't want it to be suffocated by being one more Foundry product, we wanted it to be able to have its own voice."

He adds: "The test for Mischief will be: 'is this so easy that will my son, daughter, grandmother be able to use this tool?' Is it something that is easily accessible and isn't very intimidating?"

Already looking to the future of the business, Kenessey says the team is working on even more tools for its Made with Mischief subsidiary outside of Mischief itself, though the company isn't yet ready to disclose the exact details of its plans. It was suggested, however, that this could be a combination of other new acquisitions and internally developed software.

"We're going to bring other products that are going to have this broad appeal to them, and we're going to put it under the Made with Mischief brand," he says.

"And then Chris Cheung (head of Made with Mischief's product agenda) will be responsible, with and myself and Sarah, to bring those products out."





A new Deus dawns

With a range of Deus Ex projects underway, Eidos Montreal has built a new game engine specifically for the series and its narrative needs. **Will Freeman** takes a fittingly early look at the studio's Dawn Engine technology



Eidos Montreal's director of technology Julien Bouvrais says the Dawn Engine has been built with storytelling in mind – perfect for the next Deus Ex title

WITH THE DEUS Ex series rebirth in 2011, the cyberpunk thriller returned to the mainstream, and was quickly reinstated as one of the cultural demi-gods of triple-A.

And as *Deus Ex* has grown, so has Eidos Montreal's ambition for it. The studio has even coined 'Deus Ex Universe'; not as a game title, but as an umbrella term under which the team's various projects set in the dystopian world can be gathered.

Exactly what *Universe* will be remains a mystery – other than an insistence from Eidos that it is not an MMO. However, a new proprietary engine built by the studio has emerged. Its name is Dawn Engine, it is focused on PC and 'new-gen' consoles, it is to be the bedrock of the *Universe* project, and its claim to power demonstrates that something big is underway in Montreal.

"Our goal is to be leaders in our field, and we know that this starts with two core elements; great technology and great games," explains Eidos Montreal's Julien Bouvrais, director of technology.

"In order for us to reach that goal, we knew that we'd have to go beyond our existing limits, which is why we chose to push forward and create the Dawn Engine."

ON THICK ICE

At the core of Dawn Engine sits a highly modified version of IO Interactive's Glacier 2 engine, reworked to optimise efficiency specifically for the *Deus Ex* design and development pipeline. Eidos Montreal picked building on Glacier 2 as it came close to what the team needed, although they also added several custom tools and

tweaked existing ones to allow them to realise their storytelling vision.

"We also invested a lot in improving the graphics engine, opting to almost completely rewrite the original version in G2," adds Martin Dubeau, art director.

"This was done in order to ensure that we were fully leveraging the power offered by the PC and new-gen consoles. As such, it is very easy to create both compelling and complex visual settings within Dawn."

That graphics engine rewrite introduced the increasingly ubiquitous physically-based rendering, and debuted a fresh animation system that especially considers *Deus Ex*'s character needs, while more broadly the team were able to cater for more polygons.

But what of that optimisation in the favour of narratives? While engines certainly need to serve as a platform for games that tell stories, the idea of storytelling tools in a game engine brings technology and narrative a little closer to one another than is often seen.

"We put particular emphasis around adding a few tools and pipelines to cope with our demanding narrative needs, such as an improved conversation system, and better fidelity in our cut scenes," Bouvrais offers.

"As you know, storytelling is a crucial element within *Deus Ex*, so it was only natural for us to put emphasis on these tools when developing the engine."

While Bouvrais and Dubeau admit creating Dawn Engine challenged even Eidos Montreal's most experienced staff,

they are confident they now hold the keys to a development platform that is relatively user friendly, and in spite of its complexity, focused on expedience.

THE IO'S SHARE

In building on the Glacier 2 tech, Dawn Engine provides access to a reasonably unique AI system that offers an efficient method for designers.

"Glacier 2 is built on what we call the entity system, allowing us to quickly create new behaviours based on existing building blocks," says Dubeau. "This means designers can create behaviours without needing the assistance of a programmer."

As for Dawn Engine's future, there's a chance it won't find itself limited to powering *Deus Ex* IP.

"We have a long history of sharing technology across studios," Bouvrais states. "A clear example of this is us using Glacier 2."

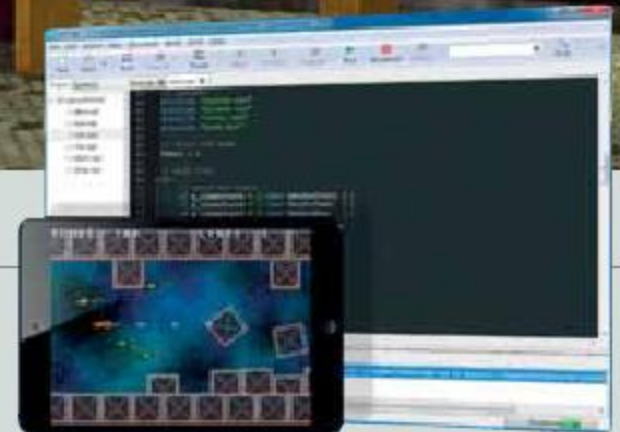
"That said, the Dawn Engine is not necessarily going to be used for every new project within Square Enix's studios, but it is certainly a new option that will be open and available to any studio that wishes to explore it. In terms of our studio, the focus of the engine is the development and expansion of the *Deus Ex* franchise. But it is very much possible, and our hope is that it will be used to craft other experiences."

Those keen on getting their hands on the Dawn Engine may be interested in a number of roles currently available at Eidos Montreal. Head to www.eidosmontreal.com for more information.



KEY RELEASE

As easy as app



The Game Creators talks us through the main improvements found in its App Game Kit 2

NOW AVAILABLE THROUGH Steam, App Game Kit 2 makes a series of major additions and improvements to the suite. In fact, The Game Creators owner Rick Vanner says that areas of the software have "in many cases been totally rewritten and replaced".

The main IDE has been changed to run on both PC and Mac, with new features including auto complete and code folding. The core engine has also been bolstered with additional commands, such as shader support, enhanced 2D, Spine animation, more sound controls and support for Ouya.

"We have also improved our app broadcast feature which can transmit both code and art to multiple target devices over wi-fi instantly for hassle-free debugging," adds Vanner.

"One notable improvement is the Export option, once your game is coded you can export it as an Android apk or an iOS ipa file. Normally making these file types requires a lot of knowledge and we've black boxed it for users."

Vanner says that the community gathered by the original AGK was the most influential source for these changes.

"It's our users in the online forums and the backers of the Kickstarter who have driven the ideas for new features and

improvements," he says. "They want an affordable and easy to use development tool so they can make great games. Unlike similar products, the upfront small payment means devs can keep all of their revenue if they create a successful game."

"It is not uncommon for the AGK community to create awesome apps and projects beyond the scope of the language, such as creating their own 3D functions before the language even supported them."

FOR FIRST-TIMERS

While the changes have been inspired by established users, there's plenty of support for newcomers as well, from detailed documentation and video tutorials to a variety of sample projects.

"Perhaps the biggest factor in the accessibility of AGK is the BASIC script that has been specifically designed to make the rapid creation of apps very easy," Vanner continues. "Based on the original Beginners Symbolic Instruction Code, even if you have never programmed before, you will have simple programs up and running within minutes."

"The lessons you learn and the commands you use can later be carried over to the C++ part of the product, and eventually a path into professional app

development. If you wanted to get into the games industry, don't want to start with drag and drop, but do want to code and create results fast, AGK2 has been expressly designed to meet those needs."

Vanner also recommends newcomers check out the free trial, and join the community hub on Steam, adding: "The development team are very active and will answer any questions raised".

Going forward, The Game Creators will be working closely with said community on the App Game Kit's roadmap, allowing users to vote on the features they most want to see implemented.

"Additional 3D commands and 3D physics are also planned for AGK2 and we're keen to create an extensions system to allow third parties to add new features to the AGK2 BASIC," Vanner adds. "The world of VR is also an interesting area that we want to look at once we have rounded off other features of the main engine."

What is it: The newest version of The Game Creators' suite of tools for mobile games development, allowing devs to build a game and deploy it to multiple platforms.
Company: The Game Creators
www.appgamekit.com



The Game Creators' Rick Vanner says App Game Kit's community has been instrumental in shaping the latest version





HEARD ABOUT

Giving voice to the Inquisition

John Broomhall talks with BioWare's Jeremie Voillot and Michael Kent about Dragon Age's third iteration

BioWare audio whizzes Jeremie Voillot (above left) and Michael Kent (above right) took great care with all decisions for Dragon Age's sound and music – even down to which microphone they needed to use

AT THIS YEAR'S Game Awards, *Dragon Age: Inquisition* won both Game of the Year and RPG of year – thanks, in no small part, to a crack audio clan delivering an epic production. With 42 massive levels, 834 characters, 82,000 lines of dialogue and 33,000 sound effects (let alone more than 100 minutes of music), the scope is mind-blowing.

For audio directors Jeremie Voillot and Michael Kent, *Inquisition*'s key challenges centered on creating a dynamic, believable soundscape to immerse the player in Thedas, while hitting BioWare quality across the massive scale of content the player encounters.

This duo's unique eight-year professional relationship is characterised, they say, by deep understanding of their strengths and weaknesses. On both *Inquisition* and its predecessor they've shared the lead role; Kent focusing on creative matters and Voillot the technical mastermind.

"Working as a leadership team has led to some outstanding audio results," says Voillot. "The whole is greater than the sum of the parts and we've really learned when to push and pull, delegating ownership and challenging each other on goals."

"Very early, we hammered out the creative and technical vision, meaning we could create lots of content during pre-production, sometimes just using pictures as inspiration. That helped ready us for the inevitable onslaught."

Kent adds: "Defining audio guidelines upfront was key. Locking down a composer, even figuring out what microphone would achieve our dialogue direction – it all helped. We broke things down into distinct audio areas assigned to specific individuals who really took ownership."

"For some signature sounds, like the dragons and the Fade's overall aesthetic, it's important I creatively lock down early, providing the team a strong steer as they iterate on content later."

THAWING FROSTBITE

The entire game was migrated to the Frostbite engine, providing Voillot's main challenge: liaising with audio programmers to harness the 'awesome power' and audio functionality of the famed tech for an RPG.

"It's not simple," he explains. "FPS requirements differ a great deal from an RPG. Procedural systems became central, as handling the sheer amount of work on a title like ours with older methods and workflows isn't an option. I pushed very hard on as many systemic solutions as possible. Removing some key rote tasks – tagging animations or placing sound emitters – meant freeing up guys to focus on what mattered more: amazing sounds."

"A great side effect from these tools was removing art team dependencies, allowing them to iterate right until we shipped. This improved the audio team's morale and our relationship with other departments."

Whether it's for the 'grounded, saturated, heavy' combat audio, the creature audio, the environment sounds, the detailed Foley or the UI, Kent and Voillot cannot speak too highly of their team.

"We had semi-procedural systems, but to maximise their fullest potential we needed people to create new styles of dynamic content – whilst painstakingly hand-scripting key story moments," says Voillot.

Kent adds: "We had a very strong team behind us on this project; you could really feel that during the final months. Normally it's a bit chaotic, but these guys really had it under control. We were the first BioWare project to use our new mix theatre built last year – a huge improvement."

Last but not least, the soundtrack had a new addition: composer Trevor Morris, an intentional direction change from previous *DA* games, to bring a new emotional flavour to the franchise. Voillot and Kent couldn't be happier with the results.

Reflecting on the overall effort, Voillot speaks for Kent, himself and the team: "It's incredibly difficult and humbling working on a project of this enormity. I guess the thing that helped most – both in the creative and technical realms – was preparation."



John Broomhall is a game audio specialist creating and directing music, sound and dialogue. Find him at: www.johnbroomhall.co.uk

UNREAL DIARIES

Why we jam

Unreal Engine developers tap into the tools and a supportive community during Epic's regular game jams



We had so much fun both making and playing our game, that we think we can take it on as a full project.

Kyle Rocha, UE4 developer

UPCOMING EPIC ATTENDED EVENTS



DICE Summit

February 3rd to 5th
Las Vegas, Nevada

Game Developers Conference

March 2nd to 6th
San Francisco, California

EGX Rezzed

March 12th to 14th
London, England

Email licensing@epicgames.com for appointments and sign up for Epic's newsletter at unrealengine.com.

IN ADDITION TO contributing to staples such as Ludum Dare and the Global Game Jam, UE4 developers bring their creative sensibilities to monthly game jams hosted by Epic.

On the second Thursday of each month during Epic's weekly Twitch broadcast at 19:00 GMT, community manager Chance Ivey announces a theme, which signals the start of a new jam to run from that moment until the following Sunday night.

It's common to see developers connecting with one another, calling out to familiar handles and welcoming new community members in the Twitch chat. It's a mix of disciplines and skill sets, with Epic's programmers, artists and technology partners sprinkled throughout for good measure.

Maximilian Mellhage, who tackled November's 'Two Birds, One Stone' theme with two other artists and a programmer, recalls first connecting with his teammates on the livestream. "We met a day before making our game," he says.

As the theme was announced, the four decided to band together and build *Rock Paper Bird!*, a beautiful competitive collection game with a finely crafted low-poly art style. It took home top honours.

Kyle and Michelle Rocha had been working together on a game for several months when they entered the 'Bump in the Night' UE4 jam.

The two found so much value in their new creation, *Lumote*, they decided it was worth it to scrap their ongoing project and turn their focus to *Lumote* instead going forward.

In Rocha's postmortem on the Unreal Engine blog, he says: "We were able to create something we were very happy with and wanted to expand on further. That we were then one of the three winning teams was the icing on the sweet, sweet validation cake."

"We had so much fun with this jam, both making and playing our own game, that we think we can take this on as a full project."

As artist and UE4 jam regular, James 'Xenome' Kaufeldt aptly sums it up: "You can get a lot of stuff done when getting stuck in analysis paralysis is out of the question."



Main: *Rock Paper Bird!* is just one of the many titles created during Epic's monthly game jams

Below: The developers of UE4 jam title *Lumote* decided to focus on making the prototype a full game

MADE WITH MARMALADE

When I'm 64-bit

Marmalade offers insight on why Apple is pushing 64-bit support – and how the tools firm will help devs achieve this



Marmalade head of SDK Tony Waters says upgrading to 64-bit support should result in performance gains for your app

AS OF FEBRUARY 1st, Apple is insisting that all new app submissions must support the firm's 64-bit processors, and, come June 1st, updates to existing apps also need to support 64-bit.

Just as mobile developers must race to comply with these new requirements, so too must tools providers such as Marmalade ensure that their products help studios in this matter.

Marmalade is currently working hard to add 64-bit support to all of its software, removing the hassle for developers by automatically compiling apps in a way that meet Apple's needs.

The firm's head of SDK, Tony Waters, sheds a little more light on what this change involves, and why it's necessary.

"The 64-bit processors – found in the iPhone 5s, iPad Air, iPad Mini 2 and 3, iPad Air 2, iPhone 6 and 6 Plus – include twice as many integer and floating point registers as the earlier processors," he says. "This means a 64-bit app can work with more data at once for improved performance."

"There should be a performance gain just by recompiling for 64-bit, but apps that make use of extensive 64-bit maths or custom inline assembly routines using the new AArch64 instruction set will see greater

improvements. Generally, 64-bit apps run more quickly than their 32-bit equivalents."

Waters adds that there's another, more subtle reason for Apple's switch over to 64-bit: "When both 32-bit and 64-bit apps run, there are separate 32-bit and 64-bit versions of the iOS system frameworks. If all apps are 64-bit, iOS won't load the 32-bit versions, so it uses less memory and launches apps more quickly."

"Even if your app doesn't gain much performance from switching to 64-bit, if all other apps the user has are 64-bit, you will gain from the memory efficiency of not loading the 32-bit system libraries."

BE PREPARED

It might sound complicated, but Waters assures developers that the conversion process is "relatively straightforward" – although there are a couple of things that studios need to consider.

"Many built-in data types have increased sizes or have stricter memory alignment rules, so developers will need to review their code, especially if they have 32-bit assumptions," says Waters.

"Also the 64-bit ARM instruction set is significantly different from the 32-bit ARM architecture, so inline assembly routines will

need suitable AArch64 versions for when running on a 64-bit device.

"From a Marmalade developer perspective, we have made supporting 64-bit apps as easy as possible with new options in Visual Studio or Xcode for building 64-bit binaries."

In fact, Marmalade's tools make it easy for developers to support both architectures. It's key to remember that there are still many non-64-bit devices on the market, so it's worth continuing to maintain 32-bit support within apps.

The company has a dedicated section on 64-bit support on its Marmalade Answers web page, while Plus and Pro customers can contact Marmalade Professional Support.

Marmalade is also looking to add 64-bit support for Android apps in the near future, given the number of 64-bit processors added to Android and Nexus devices.

Why Marmalade matters

Marmalade is working hard to ensure all apps created and ported with its software will meet Apple's requirement to support its 64-bit processors.

www.madewithmarmalade.com



UNITY FOCUS

Crafting a Legend

Amplitude Studios reveals how it used Unity to power its latest title, Endless Legend

PARIS-BASED STUDIO Amplitude specialises in the cult 4X genre: a blend of role-playing and strategy centred around the four central pillars of 'explore, expand, exploit and exterminate'.

Sid Meier's *Civilization* series is a prime example, although Amplitude has explored how these mechanics can work in other settings with sci-fi title *Endless Space* and its more recent fantasy follow-up *Endless Legend*.

Amplitude's experience with Unity while developing *Endless Space* means the company is now able to produce a full 4X title in 15 months with only a small team. Using the same engine for *Legend*, therefore, was the logical choice, with the team building on everything they learned from *Space* – even though, as CEO Mathieu Girard points out, they "rewrote almost everything code-wise".

"The best thing with Unity is that you can get results pretty fast," he continues. "It is a big bonus when you can plan innovative features, and you want to quickly prototype them."

"The Unity editor is also a great tool to edit content, especially as you can customise the inspectors to adapt them to your specific data."

The *Endless* team also used Unity's animation technology Mecanim to introduce complex animations to the series, as well as particle system Shuriken to improve the look of key effects.



The best thing with Unity is that you can get results pretty fast.

Mathieu Girard,
Amplitude



The biggest challenge, however, was creating the game's world.

"We had a specific vision for the terrain – hexagons with seven layers of altitude and nothing you could find on Unity would help us, so we had to develop it from scratch," Girard explains.

"It has taken approximately 15 months to reach the level of quality we wanted,

while still allowing the gameplay to develop in parallel.

"The result uses an instancing technology to minimise memory use and bandwidth – I'm surprised by the amount of geometry we push with Unity."

Saving on memory is key to developing games with Unity successfully, Girard says, – but there's a few tricks that will make this easier. Amplitude offered the following advice for new users.

"Unity is a great technology to start a game and even a company," he says. "It is affordable, has more features than you could hope for and the community is huge."

"The only caveat we can see is the way memory is managed inside the virtual machine. You are almost blind in that field, and we had quite a few cold sweats during production when we had to optimise the game."

"I would advise new users to be aware of what they do with assets, textures, and allocations to avoid nasty surprises when porting to a platform with a low memory capacity."



Amplitude CEO Mathieu Girard says the team was able to make *Endless Legend* in 15 months, thanks to its experience using Unity to develop *Endless Space*

Endless Legend
Developer: Amplitude Studios
Publisher: Iceberg Interactive
Platform: PC
www.endless-legend.com



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G52 4RU

T: +44 (0)141 585 6481
E: info@di4d.com
W: www.di4d.com

SCOTTISH FIRM DIMENSIONAL Imaging has provided its facial performance capture services and tech to a number of games developers since it was formed in 2003.

The firm's tech includes 3D facial imaging and 4D facial performance capture systems, software and services. Projects it has worked on include *Halo 4: Spartan Ops* with Axis Animation, and more recently working with RealtimeUK to provide animation for Creative Assembly's *Total War: Attila* trailer.

Dimensional Imaging is also currently licensing its 4D software to Remedy Entertainment to process facial performance capture on its upcoming Xbox One exclusive *Quantum Break*.

The firm has worked outside of games on various television and film projects, such as capturing facial performances for *La Belle et la Bête* (*Beauty and the Beast*) and TV series *Houdini*.



Its latest tech, the DI4D head-mounted camera, was launched last year during SIGGRAPH 2014. The HMC uses passive stereo photogrammetry to acquire per-frame 3D scan data, which the company claims enables it to acquire denser and higher fidelity facial performance capture data than "traditional" solutions.

Dimensional Imaging CEO Colin Urquhart says the technology delivers similar fidelity of data to its own DI4D Pro System, but by using a mobile capture system that moves with the performer, can catch a dense variety of expressions and animations.

"Our DI4D HMC Service provides a full on-location facial performance capture service, in which we provide and operate one or more DI4D HMC Systems at the client's studio," explains Urquhart. "The HMCs can be synchronised with 'house' time code allowing them to shoot in synchronisation with clients' optical motion



Dimensional Imaging's DI4D HMCs have been used in Remedy's upcoming Xbox exclusive *Quantum Break*

Our DI4D HMC Service provides a full on-location facial performance capture service.

Colin Urquhart, DI

capture systems – perfectly suited for high quality full performance capture."

He adds: "Dimensional Imaging's 4D Capture Service offers games

developers a very convenient method to access the company's technology, without having to make the financial and resource commitment of purchasing and operating a complex system themselves.

"We can, and normally do, capture on-location, which means we can capture the talent when and where they are available, for example during a motion capture shoot or ADR session, and we process the data ourselves, which means that our client gets the best possible results from the technology."

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TOOLS SPOTLIGHT

This month: **EMotion FX**

EMotion FX B.V.
Haagwinde 31
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The Netherlands

T: +31 622045101
E: info@mysticgd.com
W: www.mysticgd.com



MYSTIC GAME'S EMOTION FX is an animation SDK offering developers a way to easily add animated characters to their game.

The tool focuses on runtime animation. The runtime API allows devs to quickly add character animation and import geometry from software like Max and Maya to their game engine, and it also allows animators to set up animation behaviour and blending by visually editing state machines and blend trees.

The latest features in the beta for the upcoming EMotion FX 4 include an added debugger that allows animators to see what is going on internally and records everything they do.

“A lot of our planning depends on the need of our clients.”

John van der Burg



The graph system is also now fully multi-threaded so it can use all available cores, and a number of performance and memory optimisations have been made.

With an eye on ease of use, Mystic Game founder John van der Burg says the tool is open to both triple-A and indie developers. Since it was first released in 2004, games from a variety of genres have used it, including *MotoGP*, *Lego Minifigures Online*, *Risen* and *Warhammer Online*.

Its main userbase is those developers sandwiched between the traditional definition of triple-A and indie development, though this could be set to change in future.

“We have not invested a lot in the indie business as most people use Unity, which already has a decent animation system, and supporting many smaller indies would take a lot more effort than a few bigger clients,” explains van der Burg.

“However this is about to change, but we will announce more news about this later on.”

The tools outfit's future plans for the tool include additions such as physics integration and improvements to the IK.

“A lot of our planning depends on our clients needs, which is probably why people like to work with us as they see that we really listen to and act upon their needs,” says van der Burg.

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DEVELOP'S TOP TIPS: | HTML5

Kicking off our newest regular section, HTML5 champion Spil Games and its various development partners offer advice on building games in this popular programming language



A HTML5 game doesn't need to mean 'web game'; it is a great way to deliver games to browsers without a plug-in, but browsers are not the only target. We have found success by wrapping HTML5 games for native distribution in mobile app stores. There are technologies available for this, including Apache Cordova, Intel Crosswalk, and Amazon's HTML5 wrapping for Kindle. There can be some performance implications though, so developers should explore and understand these options and take advantage of these extremely popular channels for distribution.
Craig Robinson,
CEO, Absolute Hero



Participate in community and join forums and groups about HTML5 games development. It provides feedback and tips about development and publishers. www.html5gamedev.com is the central place for any HTML5 developer to go right now.
Vladislav Forsh,
CTO, Liquid Rainbow



Create small and fun games; development should take no more than a month, otherwise recouping costs may be tough. We stick to a rule of no bigger than 6MB with simple and fun mechanics optimised for the platforms we are aiming at.
Konstanin Boronenkov, CEO,
Hypnocat Studio



Use modern game engines and frameworks; there are great HTML5 engines that are supported by big communities, like Phaser and CreateJS. These frameworks will handle the most difficult parts of HTML5 development, so you won't be spending time on this instead of developing your game.
Vladislav Forsh,
CTO, Liquid Rainbow



There is a big difference between the performance of old and new devices. The bottleneck is in the rendering of graphics. It is important to determine a reasonable limit for the sprites displayed on the screen and abide by it. We find this number is about 100 to 150, depending on the game.
Alexey Testov, Artist and Game Designer,
Hidden Layer Games



Theoretically any HTML5-capable browser or native wrapped web view control is a target for an HTML5 game. Unfortunately, due to differences in browser APIs, device performance and capabilities, screen size and input modalities, extra diligence on the part of developers is required. It is important to design the game for both mobile and desktop browsers and to deal with differences in browser APIs straight away. Up-front testing across a variety of desktop and mobile OSes and browsers early on in your development cycle will save valuable time.
Craig Robinson,
CEO, Absolute Hero



Collaborate with others and find a great publishing partner. It is great if you are able to make the whole game by yourself but I suggest you don't. Specialise on something and find partners who will be doing other parts. Different perspectives can be the making of a great game and publishing clout the making of a successful one.
Vladislav Forsh,
CTO, Liquid Rainbow



What is really great about HTML5 is the ease it offers for prototyping and experimenting. JavaScript is a very expressive language: no compilation time, no installation – a simple URL to share and see your game running on various platforms. So prototype a lot, and don't be afraid to make mistakes.
Frederic Rezeau,
Director, Okijin Games



Think about game size, especially for the web version of the game. You need to think about reducing the game size as much as possible so frame-by-frame animation should not be used. Procedural animation and skeletal animation are two possible alternatives. We actually use Flash for piece animation.
Andriy Vinchkovskiy,
Programmer, Hidden Layer Games



STUDIO SPOTLIGHT

This month: **Supermassive Games**

Supermassive Games
1 Farnham Road,
Guildford,
Surrey,
GU2 4RG

T: 01483 549440
E: develop@
supermassivegames.com
W: www.supermassivegames.com

What were the biggest developments for Supermassive in 2014?**Pete Samuels, MD & Co-founder:**

2014 was a massive year for us as we re-announced *Until Dawn* for PS4 and took it out to events across the world. We've been delighted with the responses from press and gamers alike to our trailers and demos, but seeing and hearing player reactions first-hand was, for me, the highlights of the year.

I saw people at GamesCom contorting their bodies to cover their eyes whilst playing, and enjoyed the tremendous and totally unexpected crowd-participation moment at the keynote during the PlayStation Experience event in Vegas in December. *Until Dawn* certainly grabbed attention in 2014 and that has to be the biggest development for Supermassive so far.

How does *Until Dawn* stand out from your previous titles? How will it show off what you can do?

Samuels: In the early days of the studio, which really isn't that long ago, we cut our teeth on some small to mid-sized family-games. *Until Dawn* is a substantially larger, darker and more mature experience than anything we've done before, and it's where we always wanted the studio to go.

We are only six years old. Arriving so quickly at a place where we are about to deliver something as significant as *Until Dawn* shows that the studio is capable of anything. We have an exceptionally talented and driven team and we've developed great relationships with some outstanding external partners, and we simply couldn't have arrived here if that wasn't the case.

How did Hayden Panettiere come to be involved in the game?

Samuels: When we re-wrote and began to re-cast *Until Dawn* for PS4, the game's director Will Byles said: "I want Hayden Panettiere to play the role of Samantha". So we approached her and she said "yes". Almost that simple, although we had invaluable

help from an LA-based casting director, Debi Manwiller, who's well versed in casting for big US TV series.

Hayden's familiarity with games – from some previous voice work she'd done – made her less daunted than some by the prospect. She was a genuine joy to work with, bringing a contagious energy to the stage. We consulted closely with Hayden on concepts for Sam's costumes – including the 'magic towel' – during which she was very open and very positive and helped us to hone down to the right styles for Sam.

How are you drawing on experience with previous titles for *Until Dawn*?

Samuels: Our aim has always been to make the game as enjoyable to watch as it is to play, and our experience with movement controllers – coupled with the DualShock 4's capability and sensitivity – has certainly helped us to achieve that. By mapping characters' actions to whatever the player is considering or choosing, a spectator is able to see and understand the player's actions and intentions from the character's actions on screen.

We're also using the *Killzone 4* engine, with which we have some experience through previous work with Guerrilla, although we've made significant modifications specifically for *Until Dawn*'s look and feel.

What are your plans for 2015?

Samuels: A few of us are looking at what's next, and we've some prototyping and conceptual work going on, but right now the team is totally focused on making *Until Dawn*.

We expect to be hiring for new projects in the second half of this year.

Tell us something about Supermassive Games that many people may not know.

Samuels: Each year we have celebrated our studio's anniversary with a big event and party in London, and a new 'limited edition' T-Shirt for every team member. On our first anniversary we handed out about 30 T-shirts (below left). Five years later, we handed out 115.



Supermassive is branching out into game development for mature audiences with PS4 horror title *Until Dawn*





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